

Florida

Night in the Everglades
The Grass Carp

Fishing • Hunting
• Conservation •
Outdoor Recreation

WILDLIFE

JANUARY 1971

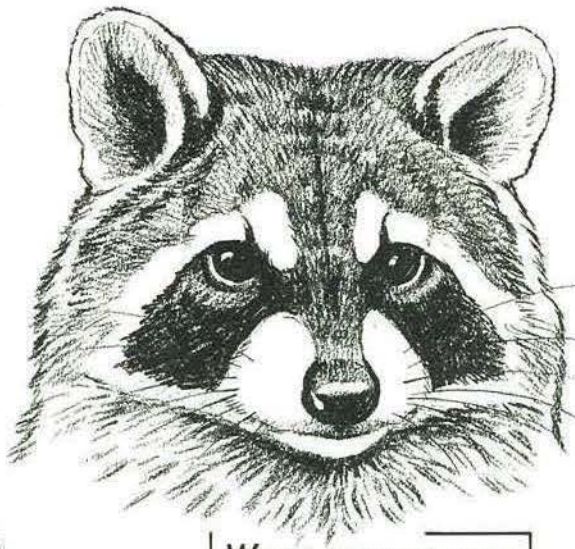
The Florida Magazine for all Sportsmen

25 CENTS

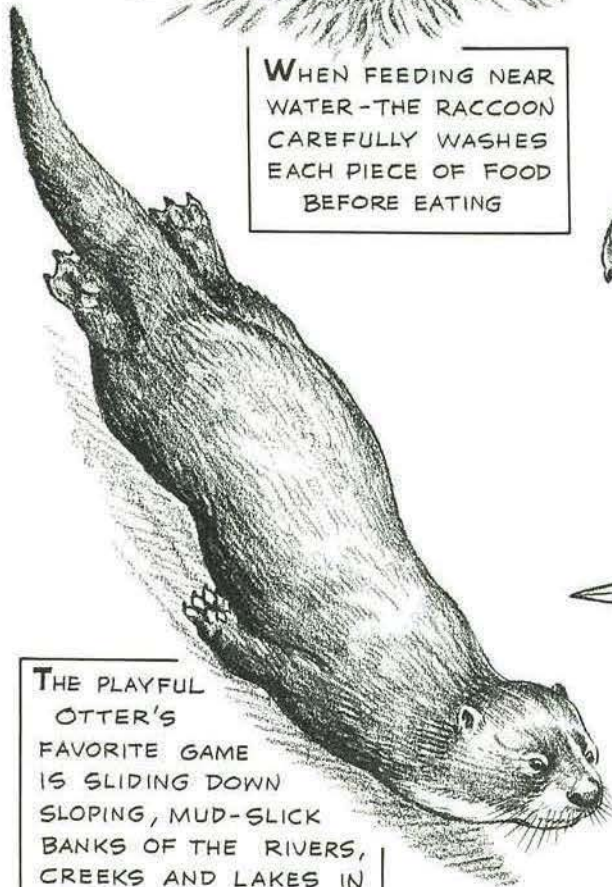


Florida Wildlife Scrapbook

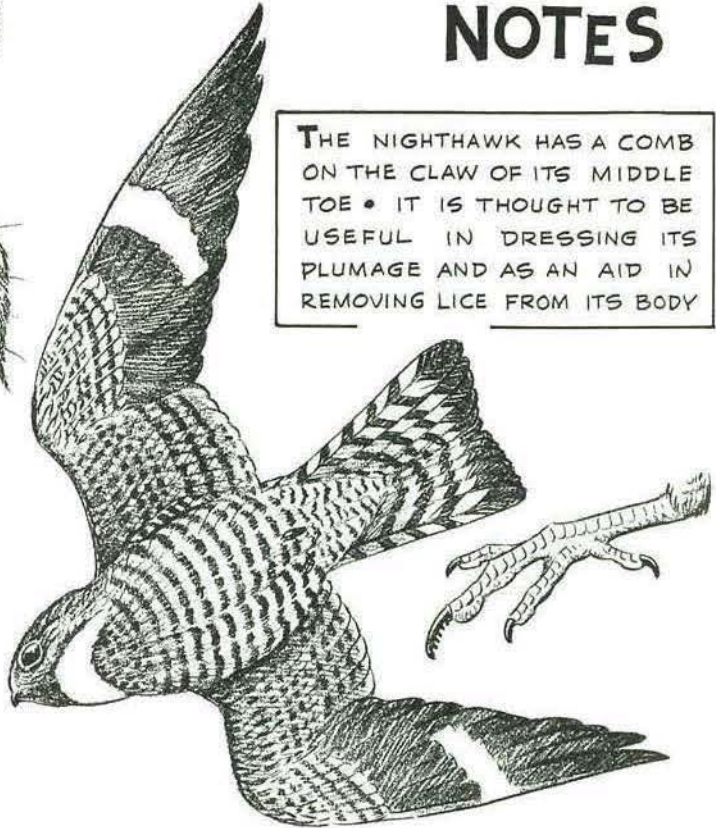
NATURE NOTES



WHEN FEEDING NEAR WATER - THE RACCOON CAREFULLY WASHES EACH PIECE OF FOOD BEFORE EATING



THE PLAYFUL OTTER'S FAVORITE GAME IS SLIDING DOWN SLOPING, MUD-SLICK BANKS OF THE RIVERS, CREEKS AND LAKES IN WHICH IT LIVES • IN THE NORTH IN WINTER SNOW COVERED SLOPES ARE UTILIZED



THE NIGHTHAWK HAS A COMB ON THE CLAW OF ITS MIDDLE TOE • IT IS THOUGHT TO BE USEFUL IN DRESSING ITS PLUMAGE AND AS AN AID IN REMOVING LICE FROM ITS BODY



THE LEGS OF THE LOON, A WATERBIRD, ARE PLACED SO FAR BACK ON ITS BODY THAT IT CAN'T WALK ERECT ON LAND - BUT, MUST MOVE BY SLIDING FORWARD ON ITS BREAST

JANUARY 1971

official publication of the
Game & Fresh Water Fish Commission
State of Florida

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The Cover

Sharing many characteristics of both the otter and weasel, Florida Minks can be considered handsome—but rather bloodthirsty little marsh and swamp dwellers. See page 14.

From A Painting By Wallace Hughes

FLORIDA WILDLIFE is published monthly by the Florida Game and Fresh Water Fish Commission, Tallahassee, Fla. Single copy price, 25¢. Subscription rates: 1-year, \$2.50; 2-year, \$4.75; 3-year, \$6.25. Change of address should be reported promptly. The Commission assumes no responsibility for unsolicited manuscripts and illustrative materials. Permission is granted to reprint text materials, EXCEPT for advertising and commercial purposes, provided full credit is given FLORIDA WILDLIFE, and contributors. Clearance must be made with photographers and artists to reproduce illustrations. Entered as Second Class Matter Nov. 8, 1947, at the U.S. Post Office, Tallahassee, Fla., under the Act of August 24, 1912.

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Photos By Lovett Williams

"IF ANYTHING HAPPENS to the airboat, we'll just sit till daylight and let them come looking for us tomorrow morning," the frogger warned us. "We're too far into the 'glades to try to get out on foot, and, besides, in the dark we wouldn't be able to see the snakes."

His warning, happily, an unnecessary one, heightened our sense of adventure. But that, too, was unnecessary. Just being there, 18 miles deep in the Florida Everglades on a dark, moonless night, perched on makeshift seats in a frog hunter's airboat, savoring the night and the wildness around us—this was adventure enough!

How many living Americans have watched a panther unawares or caught a great bird in their arms? We were temporary intruders in another world—a mysterious world usually seen only by froggers, Seminoles, the rangers of Everglades National Park (a few miles southeast of us), and occasional naturalists and scientists.

To set our geography straight, we were in the southwest corner of the state, near where the

Nighttime in the Everglades

exposes creatures who live in the
most unique ecology in Florida

By TOM AND LUCIA TAYLOR



Everglades and the Big Cypress Swamp meet. We stayed well west of the boundary of the park, of course, where airboats are forbidden. Even so, by the time the roundabout trip was over, we had seen a fair sample of the unique ecology of the Everglades country.

The opportunity had come pretty much unexpectedly. A few days earlier, poking a leisurely vacation route across the Tamiami Trail (U.S. Highway 41), we had stopped to fish for snook at a bridge some 30 miles east of Naples.

Stopping at that bridge is something of a ritual

with us. We have been fascinated by the Everglades ever since we first saw Florida, and we rarely drive straight across. The view from the Trail is only a tantalizing glimpse, but it's as close as most passersby get. So we "poke," stopping to catch an egret with our cameras or, in another mood, to try for bass or snook in the canal that parallels the highway or in the waterways that cross it. There's always the feeling we're standing on the fringe of a world that's not quite ours, a world man can't exactly enter—a world of water formed by the slow-moving "River of Grass" as it makes its way from Lake Okeechobee to the Gulf of Mexico.

When we stopped, there was a lone fisherman already on the bridge, and, on a trailer across the road, an airboat, one of those odd contraptions, half boat, half airplane, especially designed to skim the surface of the sawgrass which covers the 'glades. It turned out the boat was his and he was a professional frog hunter, one of those hardy souls who venture into the Everglades and surrounding swamps at night—sometimes all night—to gig frogs from their airboats.

The skill of a frogger at spotting and gigging his quarry at high speed is astonishing. Some commercial froggers catch up to 600 bullfrogs in one night—many times more than those on string at far left. The bullfrog at rest in the water, left, is hidden to all but a frogger's expert eye. Seen below—typical view of the Everglades—vast expanse of grass, water and periodic tree islands. Airboats are used to hunt for frogs.

"Do you ever take anyone with you?"

"Nobody has ever asked."

"But could you?"

"I'd have to make some changes so you'd have a place to sit, but we could work it out."

A week later, at 6:30 p.m., we met at the same bridge. His boat having been built for commercial frogging and not for hauling sightseers, the changes were makeshift. We sat three feet or so from the boat bottom on a rather narrow metal platform immediately in front of the airplane propeller. We supplied our own boat cushions, which helped, and—his wife's inspiration—he gave us cotton ear plugs to help deaden the sound of the engine. When we were all aboard and underway, all we could see of the frogger was his back, just above us, and the flashing of his headlight on the water and grass and mangroves on either side.

The frogger's business arrangements left us wide-eyed. He sat some six feet above the water, wielding an eight-foot gig. His headlamp was battery powered and had a strong beam. In contrast, our portable, six-battery searchlight seemed dim.

As we went along at maybe 20 miles per hour, he continuously moved his head so the lamp covered 180 degrees or more. His ability to spot a frog in this flashing light was something unbelievable to our untrained eyes. Sometimes he would stop and point, and at first we would still see nothing. Then, finally, we would see the bullfrog—lying on the surface of

(Continued on next page)

Photo By Florida News Bureau





Photo By Jim Reed

A brief—unforgettable experience at night-time in the 'glades reveals a glimpse of the Florida panther, left, to the authors. They imagined encounters with the poisonous cottonmouth, below right, but they only saw a few—venturing out to hunt frogs—no doubt.

(Continued from preceding page)

the water with feet and body hanging down and only his forefeet and part of his head and eyes above.

These stops, however, were strictly for our benefit. Normally, the frogger simply swerved the boat and reached out with his pole and gipped the frog as he swished by. He looked for all the world like one of King Arthur's stalwarts jousting for the hand of a pretty maid or doing in some mean old dragon—although, on second thought, while the roaring airboat was suggestive enough of a fiery steed, the frog didn't represent much of a dragon!

In accuracy with his "lance," the frogger probably outdid the knights of old. We kept score, and he didn't miss more than two frogs the whole night. As they were impaled, the frogs were lifted up, pulled off the gig, and dropped into a chute under the operator's seat. A gunny sack in the bottom of the boat was attached to the chute.

Realizing we weren't making the trip just to see frogs stuck and sacked, our host stopped gipping at 60, which he later skinned and gave to us. (With 60 frogs for two people, our menus for a time took on a gourmet touch—frogs' legs Provencal, sauteed frogs' legs in butter, cold frogs' legs with lemon mayonnaise . . .) The frogger told us he usually takes some 500 to 600 frogs a night during early autumn, when the summer rains have slacked off but the dry season has not yet set in. His biggest market is the gourmet restaurant trade. It left us wondering whether, in another decade, we might be rallying to "save the bullfrog"—assuming the 'glades themselves haven't been paved by then. And if the frog went, what would happen to the birds and animals that need them even more than froggers do?

But that night, in any event, up to 540 or so frogs got a reprieve as we turned our attention to a frog hunter's view of the Everglades.

To the casual observer, if any one thing characterizes the 'glades it's the sawgrass. Strictly speaking, this isn't true. What really shapes the Everglades is water. The whole area is actually a slow-moving fresh water river, and it is the water that determines everything else. But it's the sawgrass (actually a sedge) stretching for seemingly endless miles that makes the first indelible impression. The airboat roared through it, over it, and around it. Sometimes the sawgrass towered eight or nine feet high; sometimes it was new growth only a foot or two high. And there were some places where not even an airboat could get through. We wove our way through watery "paths" in the thick areas, some of them made by airboats and others by natural action of the moving water. And we'd come to small patches of open water, some like ponds and others like small streams.

On this trip we sensed rather than saw the wilderness. The blackness of the night kept us from viewing the panorama of grass and water, or even from getting a good look at the trees. But the isolated stands of hardwoods were dark against the night sky; alongside and at times above our heads was the sawgrass; and in the more open spots, white clumps of spider lilies stood out, our lights revealing their graceful petals.

We came to places where cypress forests had been logged out, and our guide avoided them most carefully.

"If we hit a stump or log in there, it would turn the airboat on its side," he explained.

In the black night, with no moon and few stars,

the thought of being pitched into the water and grass—and then of having to right the boat, if we were able, while worrying about cottonmouths we couldn't see—was not particularly inviting. The frogger's light had already picked up three or four snakes swimming in the water, maybe 10 feet from the boat, and we weren't exactly anxious to meet them on their terms!

As we continued roaring around in the dark, we saw the red eyes of an alligator glowing like fiery coals. They quickly disappeared when we came too close, their owner silently sinking beneath the surface. Later we caught up with a young 'gator, about 30 inches long, and examined him closely in the beam of our handlight.

"He may not last the night," the frogger murmured as the 'gator swam away. "Years ago, I used to see 40, 50, maybe 60 pairs of eyes on a night's frog hunt. The poachers almost cleaned them out."

The little fellow was one of only four alligators we saw that night.

Now, the alligator has been given something of a new lease on life. Tough new laws passed in late 1969 in Florida and New York City have zeroed in on the sale of alligator leather products, and the bottom has dropped out of the poacher's market. It was an eleventh hour measure. Till then, many authorities have noted, the American alligator was fast disappearing. It strikes us that taking the profit out of poaching was the most effective way to deal with a seemingly unsolvable problem. (The alligator had been a fully protected species in Florida since 1961.)

The 'gator, like most wild things needing wild places to survive, still has its problems as a burgeoning population keeps draining and developing, but now, at least, he has a chance to replenish his kind in the isolated corners of wilderness where man is still relegated to visitor status.

The Everglades, in fact, is still a haven for many wild creatures, one of the scarcest and most likely

to remain unseen of which is the Florida panther. (The cougar or mountain lion of the West is the same animal.) Shy, wary of man, not too plentiful in the first place, and nocturnal to boot, he is rarely spotted. But he's still there, and we don't have to take somebody else's word for it. On one of the islands, or "hammocks" of hardwoods, our guide's headlight picked up a panther in the branches, some 10 feet off the ground. It was only a quick glimpse. The panther saw us, too, and stood there staring at the light for a few seconds before bounding down and disappearing into the undergrowth.

Nor was he the only wild creature apparently watching us as we moved through the night. An American bittern swooped out of the blackness straight into the arms of our surprised pilot. He held the bird while we took a close look at the yellow eyes, the long, pointed beak, and the yellow legs, and mused about being eyeball-to-eyeball with a wild bird.

We had heard countless birds flying up as we cruised around, and had seen some of them dimly outlined against the almost-black sky. Logic told us what had happened—or did it? The bittern, we concluded, had been blinded by the headlamp and had flown directly into it—like the proverbial moth. But as we released the bird and watched him fly off into the night, probably as startled as we had been, another thought struck us. Was our logic correct? After all, the frogger is the bittern's prime competitor. The frog is the bird's main food. Could it have been an aerial assault? We wondered.

In one of the "ponds," our lights picked up a pied-billed grebe sitting on her floating nest (our friend called her by her local name, "didapper"). This nest may be the original houseboat. Whenever it drifts close to shore, the grebe paddles it out into open water again so her home won't be ravished by a hungry bobcat or raccoon.

We saw why she might be worried about raccoons. Almost every patch of dry land seemed to have a 'coon on it. First we'd see just a pair of bright eyes in the light, then we'd see others moving away or just standing there alertly looking us over. There are uncounted numbers of raccoons in the Everglades, feeding on frogs, crayfish, mollusks, and, indirectly, on the leavings of tourists and campers.

Around midnight we started looking for roving headlights, and spotted one a couple of miles off. It was time for "lunch," and in the next half hour, a half dozen frog hunters gathered to share sandwiches and shop talk by the light of their headlamps.

The conversation touched on frogs, alligators, cottonmouths, water snakes, airplane motors, and boat beams—and it struck us, not too long gone from Chicago, as a far cry from a lunchtime conversation at, say, The Blackhawk. But was it, really?

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Photo By Wallace Hughes

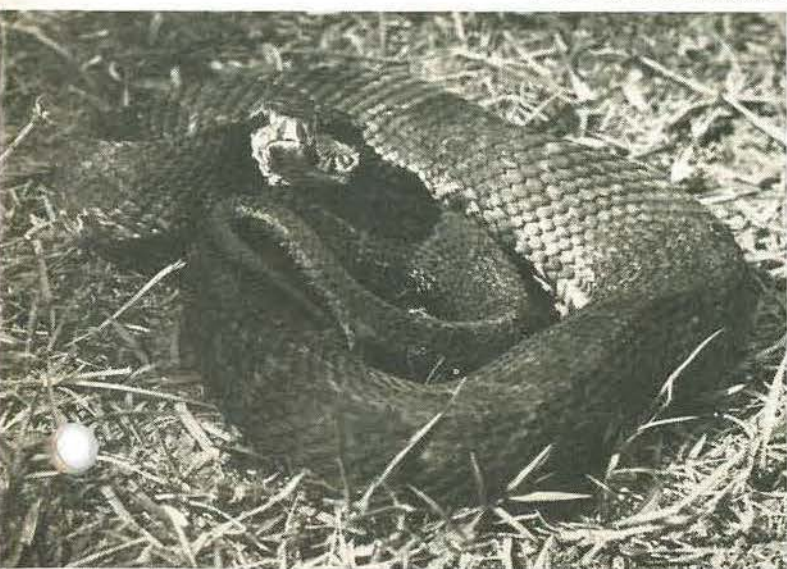




Photo By Bob Brantly

Practically every island, or hammock in the Everglades is home for a colony of raccoons, above, but—the 'gator population has been heavily dented by years of illegal hunting. Now—under tough new laws and heavy penalties, poaching has lessened—the alligators are coming back.

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On reflection, a conversation like that relates to America's future as much as any discussion of construction, politics, public relations, the stock market, or whatever else people might be talking about across Chicago luncheon tables these days.

Really, the things these men talked about—land and water, birds and animals, professions and hobbies—these are the things that basically affect the future of our society and our nation. They are, after all, the major factors involved in land development, transportation, communication, agriculture, and industry. Too many times in too many places in the past, all this, thoughtlessly lumped together as "progress," has spelled disaster for the wild places. For example, the seemingly interminable Everglades area is today a mere shadow of its former self. Even if man has sense enough not to drain the 'glades deliberately and systematically, he may do so inadvertently by developing something else somewhere else. Drainage for agriculture, construction of flood control dams and highways, and a near miss on plans to build a jetport there have all threatened the fragile ecology.

Total destruction of an ecosystem to accomodate "progress" is neither necessary nor desirable. On the

other hand, its not always possible to leave the lands totally wild and untouched. Man must and will come first, but not, we hope, to the extent of the destruction and elimination of his natural inheritance.

The answers must surely lie in the philosophy, "live and let live"—development without destruction of naturalness; agriculture without erosion and the impact of persistent pesticides; industry without pollution and desolation; outdoor recreation without littering and vandalism.

Some places on earth, like the Florida Everglades, are so unique they demand special treatment. Man's inroads on the 'glades began long ago—before people realized that "worthless" and "swamp" were two words and that such a delicate ecosystem, once despoiled, is irreplaceable. In this sense, the swampy Everglades is priceless. Perhaps ignorance of the irrefutable laws of nature was an excuse once. It isn't today.

Our frog hunt—our memorable night in the Everglades—was almost over. We started back northward toward the Trail in the darkness, still stopping on occasion as we had all evening. Once there was a side trip to explore a new route for our guide to take on future frog hunts. About a half mile from the landing we saw one last alligator.

We'd like to do it all again. It was a fascinating experience, sitting in the starlight with the great engine quiet, listening to the strange sounds in the night—an owl in the distant woods; the splash of a frog; the cry of a bittern; the wind in the sawgrass; the ever-present feel of insect life all around; the lapping of water on the boat as it rocked a little; the far-off gyrations of another frogger's headlamp; a distant rumble of thunder; the smooth movement of a snake swimming in the shadows—all this is part ours—and yours. It belongs to all Americans. We own it by inheritance—to study, to observe, to explore, to use, to keep . . . to pass on. ●

Photo By Mike Fogarty



Speck Fishing

FISHING

speckled perch angling provides year around sport in Florida, but the best times are late winter and during the spring—when spawning

By CHARLES WATERMAN



NATURAL LAKES and rivers go up and down with the rainfall. Some impounded waters go up and down as a result of artificial regulation and sometimes they fluctuate too much. Every lake and river is a new ball game where fluctuation is concerned.

Fish management people must study each individual case to draw a conclusion about drawdown, which is a relatively new maneuver in fish culture. Because it is possible to overdo anything, they sometimes have a sales job to do. As the deadly poison, arsenic, can be beneficial in some medicines, so the deliberate drawdown can be a help in fish production.

There are situations where excessive fluctuation can ruin the fishing. Take a kind of fish that goes upstream to spawn but lives most of its life in a lake. If the lake is excessively lowered at spawning time, the fish may not be able to work its way upstream because of barriers it could swim over in higher water. The result is a jolt to the fishing. That could happen to fresh water trout or to striped bass as well as to other species.

Now the reasons for deliberate drawdowns are complicated but quite valid where the management people have studied them carefully. If a lake has a great deal of pollutants they can be greatly reduced by exposing a section of the bottom to sunlight. Time and degree of drawdown can be adjusted to avoid any damage to spawning procedures. A properly drawn down lake is rejuvenated and the natural aging process of a body of water can be postponed by the device. All lakes are growing old and turning to marsh and then to dry ground. The process can take ten years or 10,000 years dependent upon the circumstances and terrain.

A bottom that has been exposed to the air and sunlight for a considerable period becomes a "new" bottom when it is again flooded. The benefits of "new" bottoms are easily observed when you note the excellent fishing for bass and panfish that almost invariably occurs in a new southern impoundment. Then as the bottom ages under water, the perfect balance of the habitat begins to change, the fishing deteriorates, and there is a cry that the impoundment is "fished out."

Any benefits gained from drawdowns are temporary for the aging of a lake continues as long as it holds water. If the water supply can be regulated, the drawdown can be repeated.

Of course, water can get too low. The drawdown as practiced in fish management is not intended to reduce the supply of gamefish, even temporarily. It may concentrate them in a smaller area and actually improve fishing while it is going on.

Extremely low water is something else if it induces overcrowding and a consequent depletion of oxygen. Just to show how smart I am after listening open-mouthed to a whole passel of biologists, I'll explain this oxygen business a little.

The fish themselves use oxygen, of course. Decaying plant life uses a lot of it. Tiny algae that add to the oxygen during the day can subtract from it at night, and warm weather adds to the consumption, as do cloudy days. That's why, they tell me, the major kills generally occur in the early morning hours, especially after cloudy days.

There are some Florida canals that have routine fish kills every year, being located in highly productive areas where the fish grow rapidly and then are forced into excessive crowding when the water level drops.

The complexity of all this business sometimes causes unjustified criticism of fish management people. The answer is that each body of water must be studied individually. Whereas a drawdown in one area ruined the fishing, it can be salvation in another.

THERE PROBABLY wouldn't be much to talk about at a crappie fisherman's convention. There are so many ways of fishing for speckled perch in so many parts of the country that it would be hard to convince them they were talking about the same fish.

In many places the crappie is considered a deep water fish, but he certainly ain't if there is no deep water to go to! I was introduced to the crappie barge something over 30 years ago up on an impoundment in the Ozark mountains of Missouri. You fished at night, there were bait tanks all around the big boat, and you handlined the fish up from 'way down there. By the time they got to the surface they were about as lively as big, nickel-plated pancakes. Good to eat, though. The barge stayed anchored and the lights attracted bait—and crappie.

I think the crappie barge was pretty new at that time and, as I recall, the radio on the barge was screaming out the lurid details of the second Joe

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Louis-Max Schmeling fight. Don't hold me to the exact year, but that was the fight all right.

That kind of crappie catching was novel to me because I had been catching them in shallow creeks on worms and now and then on small spinners, used in those days on flyrods. Once in a while one would take a bait intended for bass.

A while back I was watching a flotilla of boats drifting across a Florida lake where the water was something like five feet deep and those "speck" fishermen were mostly using the small minnows that catch more Florida crappie than all other things put together. But fishing was slow for the drifters that day. I was with another guy and we were rowing along a shoreline and casting small spinners in water about 18 inches deep. The specks were grabbing them with joyful abandon, chasing them to the boat, and otherwise acting like starving crappies. They were big ones, too.

I won't forget that day because there have been a lot of other times when I was on the short end while the minnows filled the stringer. Incidentally, the spinners we used were of the light Mepps type (not necessarily that kind) and the little flies we used with them were made of maribou in white or yellow and had small treble hooks. We were using ultralight spinning outfits and 4-pound line which gave the little spinners plenty of chance to shine and wiggle.

Those crappies were either spawning or getting ready to, I suppose. One strange thing about the situation was that the bottom was heavily coated with the remains of hyacinths that had been killed by spray.

Ordinarily, you'd say that kind of bottom is good for nothing. The particles of the decayed hyacinths were almost suspended in the water and when you'd catch a fish he'd stir up a great cloud of slimy, greenish-brown gunk. The oars stirred it up, too. This kind of fishing has been good on several occasions. It was a backwater of a Florida river.

Brush piles are generally supposed to be some of the best crappie cover. Find a fairly deep bank on the outside of a bend in a river, spot a down tree or some sunken brush, and you have a ready-made place for specks—although you might check a dozen such places before you find a fish. When there are not natural brushpiles some fishermen take the trouble to build their own, wiring a batch of branches together and sinking them with a rock or something. They then pretend to be taking a nap when other crappie fishermen pass by. After sinking half a dozen such homemade crappie holes they return to the scene a few weeks later and hope to be in business.

The very small jig, around an eighth of an ounce or less, has long been a favorite of casters, trollers



Crappie (speckled perch) are good game for very light tackle. This one was taken on a river, between the shore and bonnets.

and drifters. You cast the little jig fairly close to the boat as you drift next to the brushpiles or across weedy sections, let it go all the way to the bottom, and lift it gently as if you were trying to sneak it away without letting the specks see it. Then you slack off a little and it drops back to the bottom. Sometimes it doesn't make it back to the ground and there's just a little tug to let you know you have a customer.

You play a crappie as if you were landing a sack of eggs because he has a papery mouth and your hook is pretty small. If you want to run up a score you should use a landing net, even if the fish aren't running very big.

White and yellow are the pet colors for crappie jigs although there are other combinations that do just as well or better at times. I'd try both solid white and solid yellow first.

If you make a career of such fishing you should either make the jigs yourself or have a good supply source because you can lose them by the handful in brushy water. The fish live close to the cover and may head that way when hooked. You'll snag up often enough when you're just retrieving but you have to make calls if you want results.

When you get a speck near the top on very light stuff there's a touchy moment when the rascal comes up and flaps around on the surface. That's a good place to lose him and if you can let him do his final didoes a few inches down rather than right on top you're more likely to put him in the boat.

There have been unusual cases when specks hit

surface lures in preference to something underneath but I wouldn't count on that. I can recall finding them feeding right on top where there was a little run-in along a slow-moving river channel. When he *does* strike on top he can pop like a bass, but specks have never been noted for hair-raising battles. It's more a matter of finesse than ferocity. Easy does it.

Most crappie appear heavier than they are because they're shingle-shaped. A 2-pounder is very large, even though there are some larger ones taken occasionally.

If there's a challenge to crappie fishing it's in the unreliability of one method as carried to other waters. Down in south Florida I've tried jigs where everybody else was using minnows and come up with a complete blank. That doesn't mean the southerners can't be caught with spinners and jigs, but there are days and places when you're wasting your time. For the most part, I'd certainly prefer live bait when the water is cloudy.

There's speck fishing the year around but you have to find them and the most reliable business is done around spawning time. Late winter and spring bring most of the Florida fish aboard. They aren't sailfish or tarpon but there are lots worse ways of spending a fishing day.

I HAVE BEEN TRYING to take pictures of fish and fishing for longer than you would believe. Some of them have been fair, a very few good, and most of them pretty lousy.

Now and then a fisherman or photographer or a combination of the two (they're the worst kind) takes up the subject with me and, usually, the talk turns to the great photos of leaping fish that liven the pages of the outdoor periodicals and the methods used to secure them.

Well, many of them are out-and-out fakes, done with great effort and often considerable expense. The methods and personnel used to make fake jumping fish pictures are sometimes awe-inspiring. They are also pretty clever. Now and then such a picture comes forth so well done that neither a photographer nor a fisherman can tell that what he sees is not exactly what happened. When I see one so good that I'm not sure, it really is good, whether fake or the real thing.

There are some kinds of jumping fish that do their stuff so well a good photographer and a good fisherman working together can make some spectacular photos. The tarpon lends himself to such pictures, often leaping close enough to the fisherman that there's a chance for detailed photos. The sailfish is often too far away. The black bass is too unpredictable and so is the snook. The salt water trout is almost impossible. The shad is a fairly good subject and usually caught in the open where you

can watch several boats operating at once and bear down with a telephoto lens.

You may recall hearing me rant before about the exploits of A.W. Dimock who wrote *BOOK OF THE TARPON* along when the current century was just getting started. Dimock, who fished the salt water around Florida, was doing things with light tackle and canoes, helped by big tarpon. His book leaves me gulping because, not only does it tell of his fishing feats with light (but fairly primitive) tackle, it is illustrated by what is probably the finest collection of tarpon fishing pictures ever assembled. Of course he had a lot of fish to take pictures of, had all of the time he needed, and had an excellent photographer on the job, but the equipment of those days just simply wasn't noted for spectacular action photography.

He had the fish over the fisherman's head, swamping the canoe, hopping into the lens, and doing all of the other things so difficult to photograph these days with the latest equipment. We try to get our fish action with a motor-driven Nikon and a picket fence of lenses to fit any situation that arises, and we have never come close to Dimock's pictures.

I got into news photography in the early thirties and, even then, there was nothing much around to make startling action with unless conditions were pretty much ideal. As I gather it, Dimock and his crew used plates, and I don't know what kind of camera.

I understand there was some sort of pamphlet put out by Dimock, telling how his pictures were made, but I have never been able to run it down. If any reader just happens to have that little book kicking around the attic, I'd sure like to hear about it.

I HAVE BEEN USING a slow-sinking fly line put out by Pflueger. It appears to be made of monofilament although it's designed as a weight-forward or "torpedo taper." This is not a distance line such as you get with a "shooting head" and monofilament running line. It won't go quite as far as the regular head and monofilament as is used by many steel-head fishermen, simply because the running line is fairly large in diameter.

If this sounds too technical for you maybe it's because you live in what some Northern fishermen call a fly-fishing desert. There really aren't too many fly fishermen in Florida, even though we talk about it a lot.

The sinking line is almost never used here except by a few salt water fishermen. There are times when it works well on black bass and crappie. It sure tears up the shad, but the last time I fly fished for shad I could hear the passing trollers comment that I was in a funny spot for bream. ●

Animal Sounds

By ROSS PHARES



MOST SO-CALLED accidents with wild animals are not really accidents. They are usually caused by our ignorance of an animal's ways of warning, or our disregard of their signals. As a rule, animals do warn us when they are in a hostile mood. To be able to recognize these warnings, and then to take heed, can make life outdoors safer and, consequently, much more fun.

The greatest single threat to our peace of mind during outdoor activities in many regions is the rattlesnake. But no creature is more accommodating; none is quicker to sound a warning to come no closer—and no sound is so unforgettable as the buzz of the dry rattles vibrating on the end of this snake's tail. It does not *have* to rattle nor coil to bite, but its clear warning is nearly always sounded, and saves many injuries and possibly deaths every year among those outdoorsmen who know the signal and heed it.

The dangerous cottonmouth has no sound equipment for telling us to stay away, but it uses special scent glands to emit an offensive, characteristic odor when aroused. It is difficult to be specific about snake odors. Descriptions of them vary so, one wonders if the condition of the people, and perhaps of the snakes, too, may have something to do with the sensation one receives.

I have smelled angered cottonmouths. It is one of the most repulsive odors I have ever known. I have been near rattlers bayed for a long time by dogs, and have examined wounded rattlers, but have never noted a distinct odor about them although I have

heard people compare the odor of a rattlesnake to that of overripe cucumbers. If you smell an odd, sickening odor, particularly when in or near the water, proceed with caution. It may be a dead fish somebody has discarded, but then again it may be an old cottonmouth!

Some acts of snakes, incidentally, are not as dangerous as they appear. Frightening stories are told of "runner" snakes such as the coach whip chasing people, wrapping their bodies about their victims and whipping them to death with their tails. This is pure folklore. A coach whip or black racer molested or frightened near a den of young may run toward a person with its head up as a bluff, but that's all there'll be to it. And if you get between a cottonmouth and the water, it may appear to actually charge you. Its intent, however, is to reach the safety of the water.

Top speed of the average snake is four or five miles an hour, so almost anyone can outrun the swiftest serpent. There is no point in worrying about snakes chasing us in the woods. Just keep eyes and ears open and stay out of their way and they'll make the same effort for us.

If you see a snake, it'll be staring unblinkingly at you, but don't take this as a signal that it intends to "charm" you. Snakes have no eyelids, and thus they seem to stare in a manner some people regard as hypnotic. So, if you want to stare right back at a snake, go ahead. It can't hypnotize you. In fact, it can hardly see you. A snake's vision is not good enough for him to see you clearly for a distance of more than a few feet.

You may think you can smell a skunk at a safe distance. Not necessarily. It is not the trigger-happy critter it is generally accused of being. A skunk normally uses its renowned spray gun only as a last resort. But the skunk is not the "scaredy cat" type. It doesn't have to run. It can and will stand its ground against almost anything. First, it tells us not to come any closer by stamping on the ground with its front paws. If this war dance is not taken for what it's worth, the animal bristles its fur and raises its tail. Any knowledgeable intruder will stop in its tracks at this signal—man or beast. This warning is brief, but it says unmistakably, "I'm not fooling." Another step closer, another flash of its bushy tail, and the skunk or civet cat is ready to turn loose the works!

A general sign of anger among animals is that bristling of the hair we mentioned. In the north woods of America, such a display by the porcupine is truly a "hair-raising" spectacle—and the porcupine knows it. This simple but adequate defense is mostly bluff and cover protection. This animal cannot shoot its quills like arrows, as some old tails relate. It is relatively slow and clumsy on its feet, so when it makes a big pincushion of itself, just remember to give it plenty of room.

Even the little creatures can attack us with telling effect, and to ignore their warnings makes it easy for them. Don't take the expression "mad as a hornet" as a mere figure of speech. A hornet not only has a hot temper, but a hair-triggered one as well. When he gets his dander up, he normally doesn't dilly-dally before launching his attack.

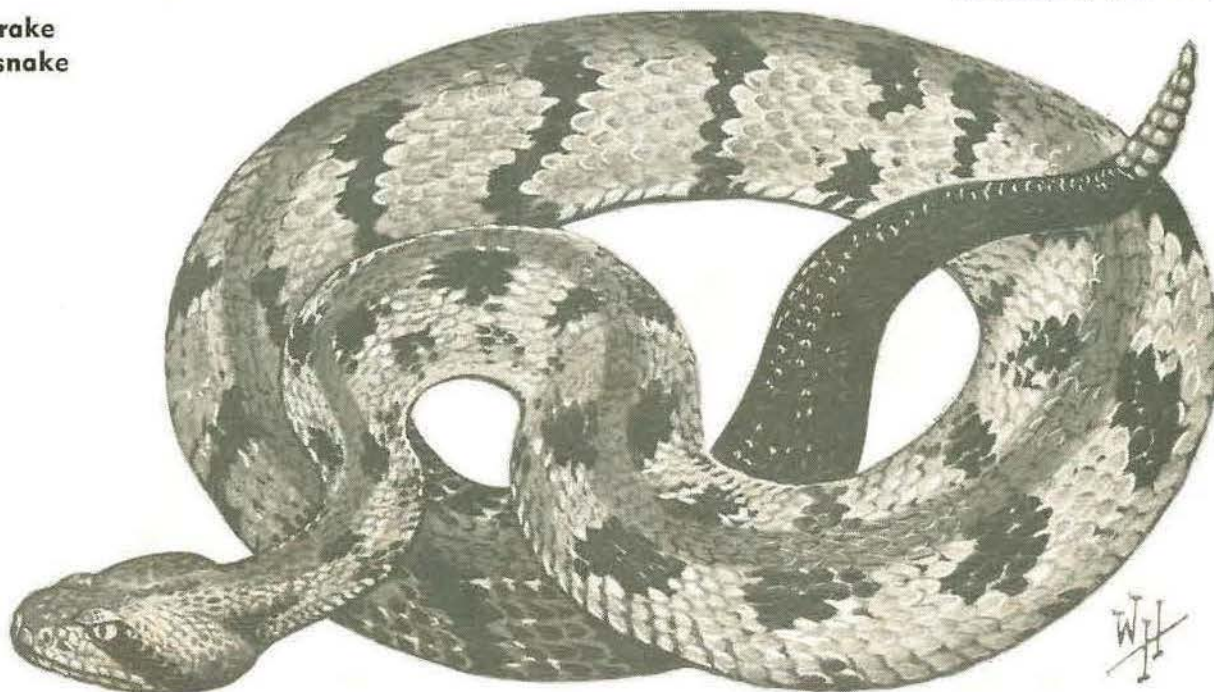
Fortunately, these insects get noisy in their rage. You can hear them coming far enough away to duck or take cover. In their mass flight they make a buzzing, humming sound that is not likely to be forgotten once you've heard it.

Hornets build great spherical nests in trees, using their own manufactured gray colored paper material. If you come upon a hornet nest and happen to bump their tree accidentally, you'll undoubtedly hear their whirring wings. Don't make a target of yourself. Flop flat on the ground if you can't do better, and stay there until you hear no more whining overhead. That's the "all clear." Don't judge a hornet, wasp, yellowjacket, or even a honeybee, by its size. Nothing its size (short of a bullet!) strikes with such force and authority. The droning of a horde of insect wings is a warning sound worth learning to recognize fast.

A safe general rule to follow: If an animal makes a sound or movement you do not understand, don't approach it. Similarly, if a wild animal (or a pet, for that matter) acts ill or strangely docile, by all means leave it alone. It may be rabid.

A little understanding, reasonable alertness, and a healthy respect for the moods of wild creatures will make our lives among them more enjoyable—and certainly safer. ●

**Canebrake
Rattlesnake**



Illustrations By Wallace Hughes



Photos By Wallace Hughes

Florida Minks

SOMEWHERE BETWEEN the otter and the weasel, and sharing many characteristics of both, we find a handsome, bloodthirsty little animal of the swamp and marsh, the mink. It is a nocturnal, semi-aquatic member of that widely distributed family of carnivores that includes the badger and wolverine, the marten and fisher, and the skunk and ferret—the Weasel Family.

These mammals, all fairly small, are typically fierce for their size, graceful and agile of movement, cunning in pursuit of food, and possessed of remarkable strength and endurance in their life and death struggles with their own natural enemies.

Two subspecies of mink occur in Florida, the Florida Mink in the north and the Everglades Mink in the extreme southern peninsula. For all practical purposes, the two are identical—dark brown in color, beady-eyed, long-bodied, short-legged, and moderately bushy-tailed. The chin is white, and varying amounts of white also appear on the chest, belly, or throat. The mink's hind feet are partly webbed, its ears are small and neat, its snout is short and rather pointed. It has no seasonal color change.

An adult male mink measures about 24 inches in length, including the tail, which is roughly a third of the body length. His weight may reach approximately 2¼ pounds. Females are somewhat smaller.

Trappers have traditionally coveted the mink's fur coat, for it is the top prize of their fading profession. A prime mink pelt is valuable despite its small size. One authority has recorded that trappers in a neighboring state have received up to \$50.00 for a single mink pelt, while pointing out it takes

70 or 80 to make one coat. (Prices on any fur fluctuate seasonally, however, and depend on quality and care of each pelt, trends in fashions, and supply and demand.)

Breeding minks on fur farms has been successful for a number of years. The business has taken much of the trapping pressure off wild minks while also producing, by selective breeding and crossbreeding, various color shades to tickle milady's fancy—and flatten her husband's wallet.

The wild mink's pelage is a rich chocolate brown, sometimes almost black. The underfur is short and fantastically soft and lustrous, while the longer, coarser guard hairs of the outer fur, when dry, take on a sheen that is also quite beautiful.

Natural foods of the mink include small mammals—rats, mice, rabbits, careless squirrels; birds and probably their eggs, frogs, fish, crayfish, mussels, clams, and snakes on occasion.

Minks will kill and carry off creatures larger than themselves. There is record of a particularly Herculean effort, a case in which a mallard duck was killed and dragged *more than a mile* to the den, where the provider was joined by his mate in the succulent meal.

Most minks find food easier to come by closer to home, for the marsh and swamp are its prime habitat and natural food abounds. Songbirds are infrequently taken by minks because they do not climb very much. Instead, shorebirds and rails are chosen when "poultry" is on the menu. (Henhouse raids are rarely carried off by minks, but that's only because they don't have to depend on it.)

A mink is totally at home in the water. It swims—and looks—almost exactly like a midget otter, if there are such. It can remain submerged for considerably long periods while deftly prying around sunken logs and under rocks for food items. It is so adapted for swimming it can overtake and capture fish, if not by sheer speed, through cunning and perseverance.

On land, a mink makes circuitous rounds up and down stream banks, peering and poking in virtually every nook and cranny, exploring every cubbyhole for a tasty morsel. It normally hunts alone and at night. From a den under a bank or in a hole under a rock near a stream or tidal slough, the little wanderer may take junkets of seven or eight days duration or longer. The trail eventually leads back to the den it likes best—home, which will have a well-worn little path leading from the front door to the water.

Spring is mating time for minks. Five to eight young are born in the cozy den, burrow, or a hollow log home—but not all of them will reach maturity. As usually is the case in the rugged natural world, once the young leave the den with mother, who must teach them to hunt by simple example, some will fall prey to owls, bobcats, or other enemies. No mink gives up easily, though. Any attacker is in for a battle royal when he tackles a mink of any age.

By GENE SMITH

Minks live along watercourses of the U.S., except the arid Southwest. Famous for their lustrous brown fur, they have weasel-like qualities as appear in the photos—long supple body, above; beady eyes, pointed snout, tiny ears, below.



Besides their inborn ferocity and sharp teeth, minks have another good defensive weapon: a well-developed scent mechanism. Two anal scent glands provide the essence, which is next to Cousin Skunk's in power and lasting effect.

The Florida Mink may be taken by licensed trappers from December 1st through March 1st each year in most of its habitat. But the uncertain status of the population of Everglades Mink has landed this subspecies on the list of fully protected furbearers—those without an open season. (It is found only in the Everglades and the mangrove swamps of the Ten Thousand Islands of the southwest coast.)

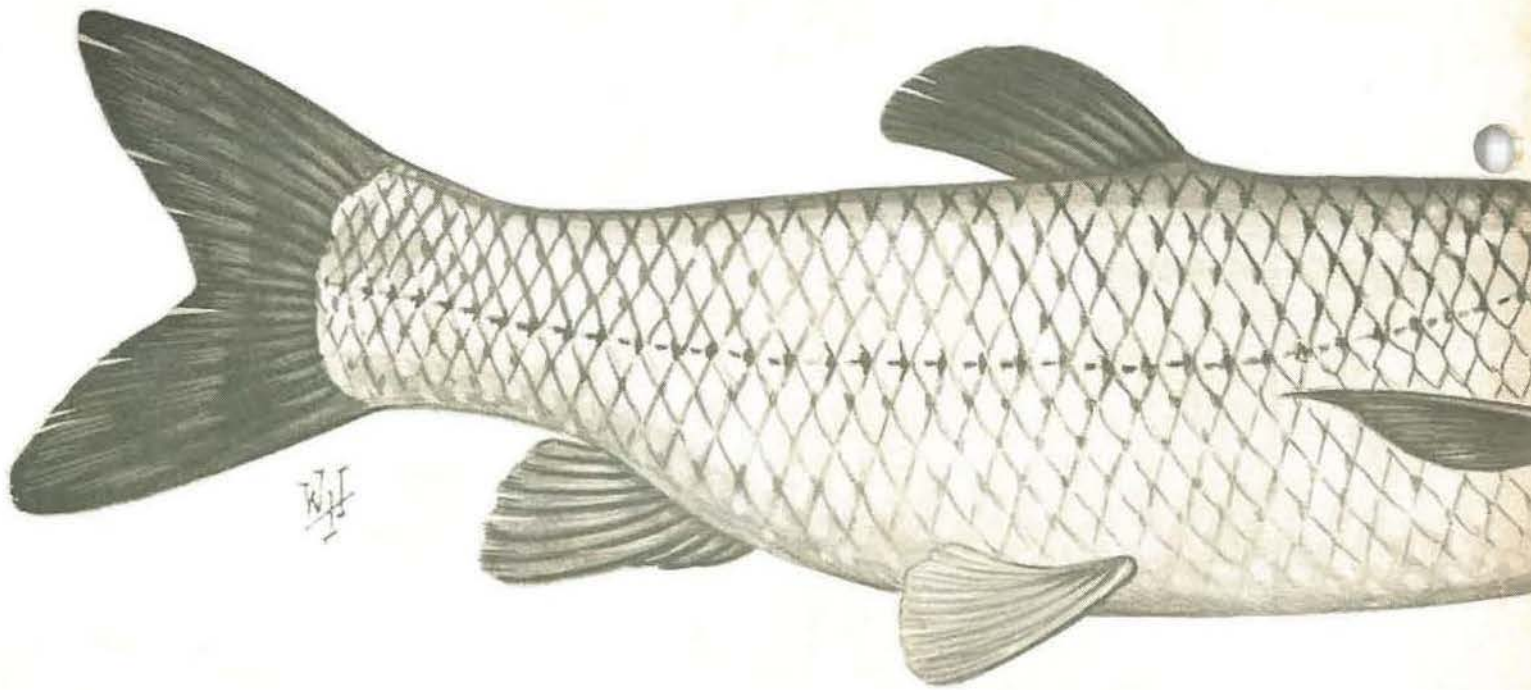
Since curiosity is a natural characteristic of the mink, it very often leads to its downfall along a trapline. The experienced trapper knows a mink likes to investigate every hole and crevice it comes to, so, if natural openings are scarce the enterprising trapper digs several cubbies, or small rooms, in the creek bank in which to place his concealed traps.

Minks can also be directed into a trap set. They normally take the easiest route whenever they travel. If there is an obstacle in their path, no matter how flimsy, they'll take the easy way around—or through—it. So, trappers sometimes arrange a simple "guidance system" by erecting a little gate or chute made of sticks or stones. If properly located squarely in the mink's usual path, the barrier will serve its purpose and the mink will walk into the set.

Two other aids are used by the trapper: mink lure, or scent, and bait. A lure can be concocted of mink musk glands and fish oil. A drop of it near a trap helps get the mink's attention. When he walks over to investigate the smell of some unknown neighbor, he springs the trap. As for bait, any fresh meat or fish makes a good mink meal. Chicken heads, liver, and bloody beef all make good baits. Even a big juicy crayfish or a plump bullfrog "served up" on a steel trap's pan will fool minks. All baits should be fresh, however. Minks do not like tainted meat or carrion.

Young minks raised in captivity have been known to gentle sufficiently to be handled and petted, but even such rare specimens always retained their mean streak, sometimes biting the very hand that was feeding them. (We said they like *fresh* meat!) Few people ever see a wild mink, though, much less have occasion to pet one.

Only 484 Licenses to Take Furbearers were sold in Florida in 1969-70, so trapping is a declining activity and hardly a threat to any wildlife in any part of the state. It would appear that our native fur-bearing animals—the mink, otter, weasel, raccoon, and all the rest—will be with us for a long time to come, provided we leave their wilderness habitat reasonably intact and their natural food supplies free from pollutants and residual poisons. ●



**Amur is another
name for the . . .**

Grass Carp

A MAJOR ENVIRONMENTAL headache in Florida is the growth of weeds which clog many of our waterways, making them unsuitable for recreational use.

Essentially, these weeds are responding to the nutrients being poured into the waters through a variety of cultural pollutants. At-the-source correction is the permanent answer yet it is possible some weed problems in the state would persist, due to our year around growing period, shallow lake basins, long hours of sunlight, and mild winters.

Be that as it may, the control of water weeds in Florida is still a major problem.

In addition to pollution abatement, three other control methods are being explored. One is mechanical—the actual mowing and removal of the cut materials. Another is chemical—the use of weedkillers for total eradication down through the roots. (Someone, too, has suggested laser beam units mounted on barges.) The third method is by natural means—manatees, insects, snails, and various fish.

At the moment, the spotlight is on the white amur, or grass carp, as a potential controller of water weeds. Although much researched in other countries, nearly all efforts have been directed towards producing this fish for human consumption, not as a weed remover.

The grass carp (*Ctenopharyngodon idella*) is a member of the Cyprinidae family to which the carp and minnows belong. It is a native of the Amur River, a waterway shared by Russia and Man-

churia, and other rivers of these countries and Siberia which flow into the Pacific.

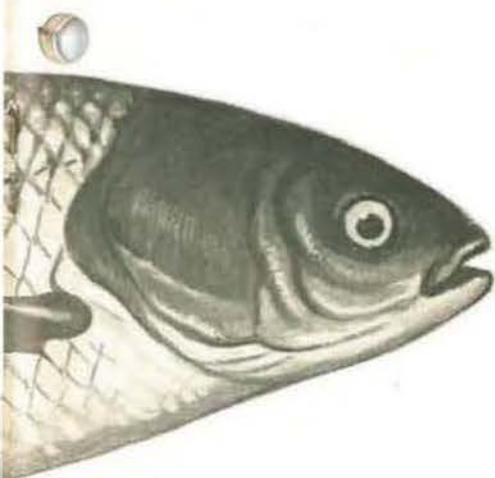
Not a particularly handsome fish as contrasted to a largemouth bass or crappie, the grass carp has a large head and an elongated chub-like body. Its general color is olive-brown on top, shading off to a silver-bronze down the sides. The cycloid scales are large and heavy, but are absent on the head, with smaller ones on the abdomen.

While its tough mouth contains no teeth as such, this fish does have a set of pharyngeal grinders by which it grasps plants, shakes its head to tear them off, then grinds them down to swallowable bits.

The white amur is a fast-growing, heavy fish which weighs up to 100 pounds, increasing at from 3-to-5 pounds per year. It is a strong swimmer and because of its broad, powerful tail, outjumps most other freshwater fish. Workers in Arkansas engaged in seining the fish actually have been injured when the grass carp frantically torpedoed over the net and struck them.

In addition to its weed-eating abilities, the grass carp takes artificial and natural baits, fights savagely when hooked, and has firm and tasty flesh.

Before any exotic is turned loose, however, it must be thoroughly researched to find the possible harm it may do when released into a different environment. Even knowing how it reacts in one country does not mean it will not create problems in another situation. That obnoxious pest, the common carp, successfully introduced in 1877 into the USA and now abundant everywhere except Maine



and Florida, was a classic example of a careless introduction. To guard against such future misfortunes, all exotics are now viewed with suspicion.

In charge of research on the grass carp is botanist Robert D. Blackburn of the United States Department of Agriculture's Agricultural Research Division at Ft. Lauderdale. The Florida Game and Fresh Water Fish Commission, The University of Florida, Alabama's Auburn University, and the U.S. Department of the Interior are also heavily involved. Other southeastern states and agencies have worked, or are working, with this fish also.

Blackburn's 3-year research program will reveal the grass carp's effects on other Florida fish, its food habits, growth rate and rate of plant consumption, in what ratios it should be stocked for effective weed control, and methods of artificially spawning the white amur.

According to Blackburn, their research site at the Plantation Field Laboratory has no canals or

streams flowing into it and is protected by a chain link fence. Grass carp are kept in 9-by-12 foot plastic tanks covered with wire mesh. Various species of weeds have been planted in the tanks and observations periodically made to see "what" and "how much" the grass carp are eating. Water quality checks are also being made.

Out of its native rivers, the grass carp has not reproduced except in three isolated instances; in a farm pond in the Ukraine, in the Ah Kung Tian Reservoir in Taiwan, and in the Tone River System of Japan (in latitude, Florida is located between Taiwan and Japan). While the sex organs in both male and female will develop to maturity elsewhere, breeding does not occur unless the fish are injected with a pituitary extract obtained from other species of carp. Where these fish have been introduced—Malaysia, Taiwan, Japan, Eastern Europe, Holland, England, and Germany—the emphasis has been to produce this fish as a food source—not as a weed eliminator. The Russians have been working with the white amur since the 1930's and are far ahead in its general research. It seems that the USA is one of the few countries, along with England, Scotland, Ireland, Australia, and New Zealand, that is concerned with sport fish production and protection.

In Florida, the white amur's inability to spawn (if it persists here also), could be something between a hindrance and a help. On the one hand, it is an expensive proposition to artificially stimulate grass carp brooders to spawn to obtain the supply needed for weed control. On the other hand, unless that spawning exception occurs, this inability to breed gives the biologists a good control of the fish.

If that exception occurs, however, and the grass
(Continued on next page)

Photo By Art Runnels

The grass carp, above may aid biologists in solving the water weed problem. This fish is an eater of aquatic plant life, but there are disadvantages, too. Commission employees, at right, remove localized patch of elodea from a north Florida river—with rakes, tubs, muscles and full determination—"the hard way."

By ART HUTT





Photo By Perkins, Lakeland

(Continued from preceding page)

carp reproduce naturally in Florida waters, several severe environmental dangers could result. Through sheer numbers, these fish might compete with and crowd out the more desirable gamefish. Schools of grass carp might clear a lake of weeds to a point where forage fish—the food of gamefish—would have no place to spawn or to hide. Small gamefish, too, would be exposed to the larger predators, including possibly the grass carp. Spawning areas of certain gamefish would be eliminated. That “balance” so freely referred to would be more out of kilter than it is now.

Another point to consider is that unless these fish are harvested, nutrients—the primary cause of excess vegetation—are not being removed from the water anyway. While they are being “bound up” temporarily, upon the death of the fish, the nutrients return to the water again.

In their native rivers, the fish mature somewhere between their fifth and ninth years. In the summer, they enter the flood plain lakes to feed, overwinter in the deeper river beds, then spawn in the spring in the strong current of the shallower areas. Usually two males accompany a female, butting into her from the sides, all extruding eggs and milt simultaneously. When such activity occurs at the surface, “foh-fa” is taking place. In translation it means “buoyant flower.”

Temperature and rising water seem to be factors which trigger spawning activities. A typical hot Florida summer and its heavy rains could be important considerations.

A 10-pound female lays about 100,000 eggs which hatch in from 20-to-40 hours depending upon water

temperature. Under unnatural conditions, the injected females yield fewer eggs.

You could assume that any fish surviving a Manchurian winter must be hardy. In Arkansas, 38 fish survived for five weeks under solid ice, then swam through the following summer’s heat with water temperatures of 96 degrees equally as well.

Growth of the grass carp is rapid. In England, they grew from 5 to 14 ounces, and from 7½ to 11 inches long in 14 weeks. At Auburn University in Alabama, 97 grass carp averaging one-fifth of a pound were stocked on June 16, 1965. Just a month shy of 2½ years later, 72 were recovered. Their weights then averaged just under 11.8 pounds—more than an 11½-pound gain.

The grass carp can tolerate salinity to 10,000 ppm and oxygen as low as 0.5 ppm.

There seems to be much controversy on the food habits of the grass carp. In general, there is agreement on the food preferences of the tiny fish—they eat zooplankton, such as rotifers, crustaceans, chironomids, and tender plants and algae. As the fish grow, they tend toward becoming vegetarians, with many reports of weeded areas being completely cleaned by a few fish in a matter of weeks.

The variety of foods these fish will eat is astonishing. Researchers list worms, fish, varied pupae, beef, insects, decayed clothing, old shoes, clover, manioc, sweet potato, banana leaves, rice bran, bean meal and cow dung.

A Russian, Vinogradov, reported that fish in a pond followed their mower around to eat the grass clippings the mower threw into the pond. Fish in



Photo By Phil Edwards

The mechanical removal of water plants, left, where feasible, is the ideal solution—but expensive, and limited by the lack of profitable use and market. Chemicals work, but deposit decaying organic material on bottom, adding to enrichment. Control by natural means—fish, insects, other biologicals—is still a hope. Grass carp, above, may provide best solution.

some research ponds showed a preference for the hi-protein pellets supplied them, ignoring the weed supply.

Feeding activity is directly related to temperature—the higher the temperature, the more actively the grass carp feed.

Apparently, one of our major aquatic pests, the water hyacinth, is not on the preferred list of the grass carp, as it is too tough and fibrous to work on. Some fish gulped it in, but then spit it out. In another instance, however, grass carp fed to a limited extent on hyacinth rafts.

Much of Blackburn's research in Florida will be directed toward determining the weed preferences of grass carp. Singh, an Indian biologist, found that *Hydrilla*, also called Florida elodea, was most preferred, followed by *Najas* (pondweed), *Ceratophyllum* (coontail), *Limnobium* (frogbit), and *Utricularia* (bladderwort).

Hydrilla, by the way, has become a recent Florida pest and is the object of much special displeasure in central Florida's Butler Chain of Lakes, the Vero Beach and Indian River areas. Blackburn calls it "a villain which could kill every lake in Florida and which now infests 75,000 acres of water and is spreading day by day." Biologists theorize this vinelike weed has been spread around Florida by unsuspecting boatmen who may have had a sprig or two if it clinging to the bottom of their boat or trailer.

Czechoslovakian researchers compiled a list of 35 different species of water plants that their grass carp ate.

Experiments have shown that in most controlled situations, the grass carp can nearly eliminate a great variety of weeds in a matter of months, sometimes weeks. Unlike the common carp, which roots along the bottom and muddies the water making it

unfit for most other fish, the grass carp clips the weeds off, sometimes as evenly as though grazed by cattle. Frequently, however, a brown stain develops in the water, and is thought to be caused by the carp's excrement.

For a vegetarian, the grass carp's stomach is unusual. It is much shorter than normally found in herbivores, being about one-fifth as long as expected. So while the grass carp has to eat enormous amounts of food to sustain it (estimates run up to two or three times its body weight per day) the fecal material is composed of large amounts of undigested food, literally a "green manure" which then has to be broken down by bacterial action. Since it is a fertilizer, the excrement promotes further reactions—mostly plankton growth—in the water. One researcher found that ingested food passed through the fish in 7 hours and 20 minutes and only half of the food taken in was utilized.

The varied opinions on the introduction and the abilities of the grass carp range from one extreme to another. A committee of The American Fisheries Society and The American Society of Ichthyologists and Herpetologists have placed it on a tentative list as being undesirable for importation into North America.

The Sport Fishing Institute urges extreme "caution." The Warm Water Fish-Cultural Laboratory at Stuttgart, Arkansas, considers the grass carp an "opportunistic" which feeds on grass only when preferred foods—animal foods and pellets—are scarce. Dr. Fred P. Meyer, Chief of the U.S. Fish Farming Experimental Station at Stuttgart, states, "the fish is not a strict herbivore as is so often claimed. Like most animals, it is lazy and feeds on what is most readily available. It does, however, feed well on vegetation when forced to do so." Meyer warns that the grass carp may compete with certain life stages of native fishes—especially young fish.

Robert W. Schneider, a fisheries biologist with the Florida Game and Fresh Water Fish Commission ventured the opinion that it is likely chemical or mechanical control will have to be accomplished before the grass carp can effectively maintain weed control. Initially there may be too many weeds in a given body of water for them to cope with."

Overstocking, in attempting to bring about immediate weed control, could lead to further biological upsets once the weeds were gone.

Randy L. Boyd, Arkansas Game and Fish Biologist has said that the grass carp is "... the most efficient aquatic plant eating fish known to fish culturists," but adds, too, that "the possibility of having it become another major problem fish like the common carp is so great that unless the fish can become acceptable to Americans, its introduction should be postponed."

Bill Bailey, another Arkansas biologist who has
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worked extensively with this fish, suggests "... that although nothing is perfect, the grass carp is the most effective biological control of most problematic aquatic weeds. All indications are that it is totally effective, without adverse effects on fish populations or water conditions, on Arkansas' major submergent weed problems. We are extremely pleased with our preliminary results."

At the Joe Hogan State Fish Hatchery at Lonoke, Arkansas, Superintendent Joe Brady has a stock answer when quizzed about the weed-eating abilities of the grass carp. Hogan replies, "Let me put it this way. There is no vegetation in the ponds which contain these fish."

From Arizona, Chief of the Fisheries Division, Howard M. Basset, while admitting they could learn nothing definitive because of the limited number of grass carp they had to work with, added that "about the only thing we can say with certainty is that they do eat weeds."

A letter from John S. Ramsey of the Federal Bureau of Sport Fisheries and Wildlife's Cooperative Fishery Unit at Auburn University states that experiments have shown that "... the white amur is almost entirely herbivorous when surplus soft-textured rooted aquatic plants are available. It does take animal food incidentally, and will feed almost entirely on animal food when suitable plants run out. It does not seem to feed much on water hyacinths, however."

Phil Edwards, head of the Florida Game and Fresh Water Fish Commission's Fisheries Research Laboratory at Eustis, while receptive to the experimentation on the grass carp, still believes that to date the best method of weed control is through mechanical means, and that toying with exotics can be risky business.

"At one extreme, with the danger of overcontrol

by natural means such as the grass carp, you end up with a lake with no weeds, but with all the enrichment utilized by the algae, and the result is a drab, soupy-looking lake.

"At the other extreme," Edwards continues, "with no control, you end up with clear water and many weeds, the nutrients being taken up by the vegetation and not utilized by the algae to any great extent. The answer is to strike a happy balance."

Edwards leans toward mechanical control with weed removal because it accomplishes the basic purpose of physically taking nutrients out of the water, these nutrients now being tied up in the plants. Chemical control, which kills the plants but leaves the nutrients in the water, is not ideal but it is the only effective and economical method of weed removal there is at the present.

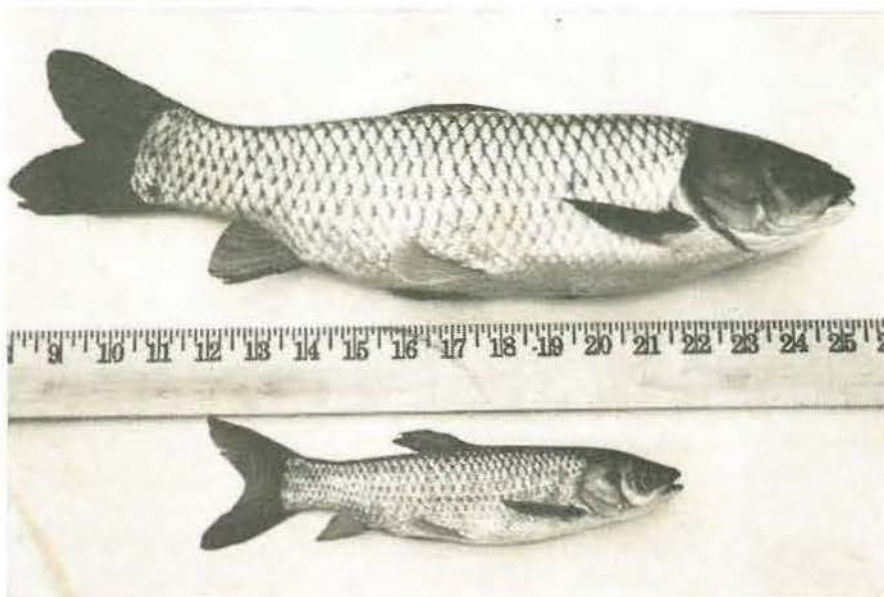
Blackburn confesses to the controversy surrounding the grass carp, suggesting that in many cases "... the research efforts were not placed in the direction we are now considering using the fish in the southeastern United States. ... We are hoping we will be able to give a true evaluation of the amur as a biological control agent for aquatic vegetation."

So, with qualified opinions ranging from "worthless" to "the greatest," a close look at this fish appears to be a necessity. Blackburn's three year research program, in cooperation with state and federal agencies, should eventually supply some of the answers on how the grass carp will fit into the Florida picture.

While water quality control is the only permanent answer to Florida's weed problem, it could be that the grass carp may prove to be the "wonder fish" we need for an interim control until our pollution problems can be solved.

On the other hand. . . . ●

Photo By Phil Edwards



The White Amur, or grass carp, grows fast; gets very big—up to 100 pounds. The average gain is about 5 pounds per year. It does not reproduce in lakes and ponds, but could become major pest in rivers of North America. Said to be tasty, it is raised for food—not weed control—in Europe.

Headed For Extinction

By **LARRY MARTIN**

WORK IS UNDER WAY to restore the once-plentiful brown pelican to the Louisiana coast through a "pelican-sharing" research program involving their cousins in Florida.

In 1966, about the only pelican in The Pelican State was found on Louisiana's state seal. Records indicate the last nesting attempt by brown pelicans in Louisiana occurred on North Island, part of the Chandeleur chain, in 1961, when observers reported some 200 adult birds and 100 nestlings.

In 1962, only a few adult birds were seen on the island, and no nesting was reported. None has occurred since. Then came the idea to attempt to re-establish a resident flock of breeding brown pelicans.

In 1968, biologists from Florida, Louisiana, and other southeastern states met at the Rockefeller National Wildlife Refuge, Grand Chenier, Louisiana to discuss past and present population trends of the brown pelican where it still nests and to investigate the possibility of re-establishing them in Louisiana.

As an outgrowth of the meeting, plans were made for the Florida Game and Fresh Water Fish Commission to capture and ship 50 fledgling pelicans from Florida to Louisiana in July 1968. The birds were trucked to the Rockefeller Refuge at Grand Chenier and placed in two covered flying pens.

Two release sites were chosen: the Marine Laboratory at Grand Terre Island and the Rockefeller Refuge. Grand Terre had once supported large flocks of pelicans. The island's beaches and surrounding marshes and bays had provided ideal nesting habitat.

The first release was made in September 1968, when 25 leg-banded birds were set free on Grand Terre. Fifteen were released as free-flyers. The other 10 were wing-clipped in the hope that by holding some birds temporarily flightless the others would be induced to remain in the general area for observation.

The free-flyers quickly dispersed over Grand Terre, but returned each day to be hand fed with the captive flock. Then gradually they moved away on their own. They were observed ranging as far



Photo By Lovett Williams

Once commonplace throughout Southeast coasts, brown pelicans are down in numbers—Florida appears to be last stronghold.

as 40 miles from the release site and were seen feeding several miles out in the Gulf of Mexico.

In July 1969, 25 additional fledgling brown pelicans were transported from Florida and released on Grand Terre. After several weeks, all were flying and had joined the other birds, learning to forage on their own and appearing to make themselves right at home.

The 1968 and 1969 releases at Rockefeller Refuge did not fare so well, however. They began falling victim to a mysterious die-off. Sick and dying pelicans noticed on the feeding sites in March 1969 were immediately taken to the Veterinary Science Department at Louisiana State University for post mortem examination. All dead birds were also

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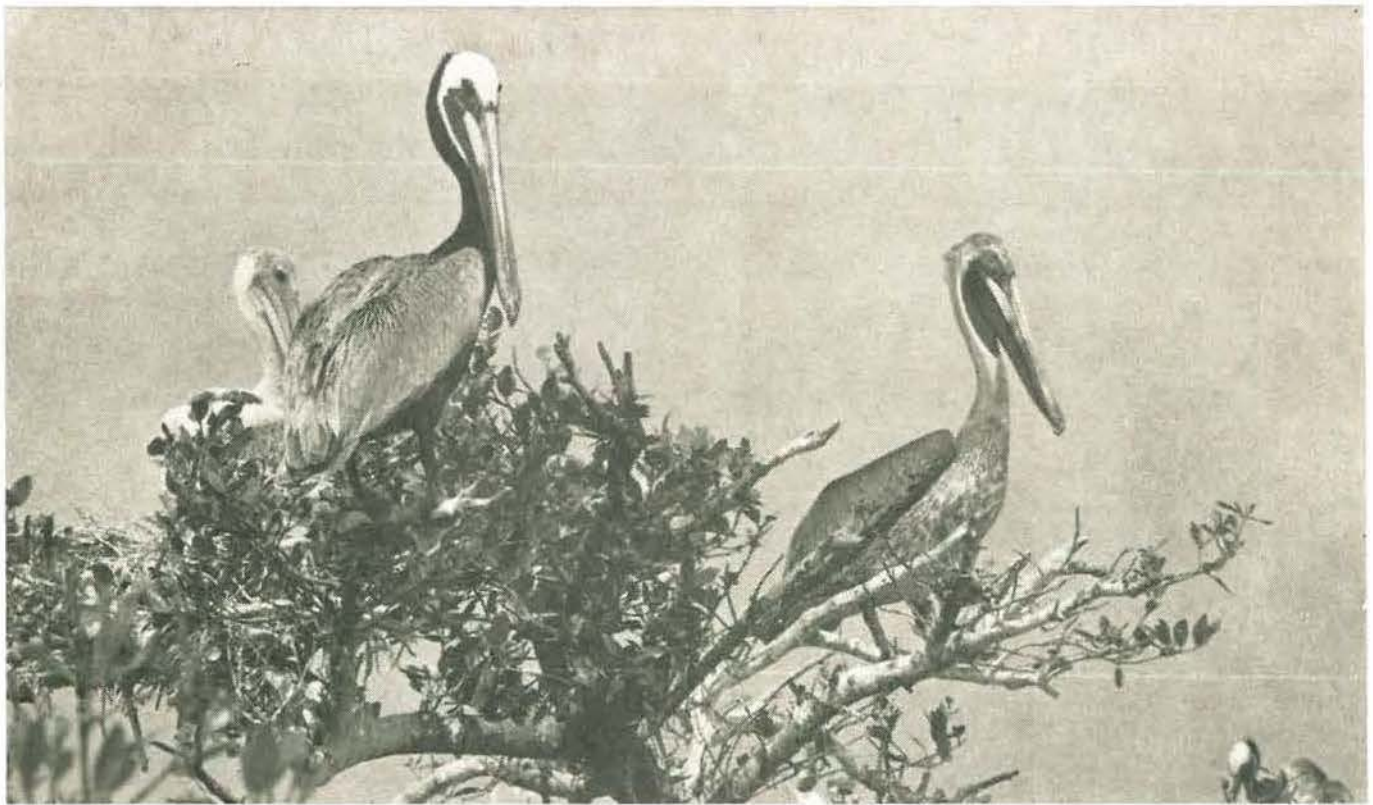


Photo By Lovett Williams

Pesticides stand indicted in the case of brown pelican's decline over much of its breeding range.

(Continued from preceding page)

analyzed at LSU's Feed and Fertilizer Laboratory for possible chlorinated hydrocarbon insecticide residue.

The results of the analysis from the Veterinary Science Department indicated little which seemed to be of major significance. Although the birds were emaciated and had round worms in their intestinal tracts, occurrence of these parasites was not believed to be unusually heavy.

The insecticide residue analysis, however, proved to be another story. Relatively high concentrations of the so-called "hard" pesticides were found in tissue of the brains and livers (especially the latter) of all birds analyzed from the Rockefeller Refuge release site. According to the laboratory report, the tissue samples contained quantities of DDT, DDD, DDE, dieldrin and endrin—all chlorinated hydrocarbons.

In trying to understand the situation, the wildlife scientists theorized the brown pelicans picked up insecticides in their food over an extended period of time and stored them in the fatty tissues of their bodies—which fish-eating species of birds apparently cannot avoid doing these days. When the birds are put under physical stress, such as during periods of severe weather, as occurred in southwest Louisiana in March 1969, the stored fat is metabolized into energy. During this process, pesticide residues are circulated to other organs of the bird's body and to the brain. Since the liver is a purifying organ, it naturally accumulates high deposits of foreign

substances. During the period of stress, if there is enough pesticides or other toxic material in the fatty tissue, it causes mortality.

On July 10, 1970, biologists from Florida collected another shipment of 100 immature brown pelicans and sent them to their new home in Louisiana. These birds were captured at their respective nest sites at Cocoa Beach (70) and Port Orange (30) and taken by truck to Grand Terre Island, where they were released. No birds died enroute, and reports from Louisiana indicate they are doing very well—already flying and feeding on their own.

Personnel at Grand Terre report as many as 22 of the original 50 pelicans released in 1968 and 1969 are feeding daily in the vicinity of their release, and some have molted to the adult "breeding" plumage. The remainder have apparently dispersed along the adjacent coasts.

Florida now has the majority of brown pelican nesting colonies in the Northern Hemisphere. Pesticide residue analyses show chemical contaminant levels in Florida pelicans are on the increase, however. The thickness of pelican eggshells has been reduced as a result of insecticide residues.

From the results of Florida's cooperative study with Louisiana, it is hoped both states, and others, will gain; that Louisiana will, in time, see her state bird restored as a nesting species and that Florida will obtain sufficient knowledge to assure that a similar disaster doesn't overtake her own brown pelican population . . . if it's not already too late. ●

Muzzle Flashes

HUNTING



By EDMUND McLAURIN

when preparing for gun sling, it is important correct set of swivels be selected to fit the preferred rifle model and sling strap width

THIS DEER SEASON, a hunting companion brought me a Marlin Model 336 rifle that had jammed during feeding of a cartridge from the loading magazine into the chamber. Despite his best efforts, he couldn't clear the malfunction.

The cartridge was tightly jammed, but the touch of a knife blade at just the right spot loosened the round for removal. When it was out of the action, I examined it and the rifle's loading mechanism carefully.

The basis for the trouble was immediately obvious. The cartridge had ".300 Sav." on its head instead of being a .35 Rem. cartridge, for which the rifle was chambered!

Somehow, the .300 Savage caliber cartridge had become mixed with the hunter's .35 Remington ammunition. While it would load in the magazine, luckily it failed to feed into the chamber for firing.

But some of the frequent field ammunition mix-ups do chamber and fire, and can be costly—in both gun repair work and medical attention!

In the rifle category, .300 Savage caliber ammunition can be mistakenly mixed and loaded with .284 caliber rounds with potentially disastrous results on firing.

Likewise, it is possible to get in trouble by inadvertently loading a .280 Remington or a .35 Remington caliber cartridge in a rifle chambered for the 7mm Magnum.

Again, a .308 caliber cartridge has been known to get mixed with .270 caliber ammunition and blow up a rifle chambered for the latter caliber.

Inadvertently load and fire a .35 Remington caliber cartridge in an old Remington Model 81 auto-loader chambered for .300 Savage caliber and you are likely in for a lot of grief.

Sometimes, European 8mm Mauser ammunition gets mistakenly loaded into a rifle of .30-06 caliber. It has happened many times, usually with resulting rifle damage, if not personal injuries.

The fact that a cartridge can be loaded into a rifle not chambered for it, and the bolt closed for firing, does not mean the firing will be safe. Such factors as existing cartridge headspace and oversize bullet diameter can cause havoc.

Many shotguns have been wrecked by unthinkingly mixing 12 and 20 gauge shells and loading a 20 ahead of a 12. Being much smaller, the 20

gauge shell will drop out of sight in the chamber and lodge in the barrel cone, where it can be a "ticking bomb" for the shooter who loads a 12 gauge shell into the apparently still empty chamber without realizing what he is doing—as often happens during the excitement of shooting upland birds or waterfowl.

To prevent such possible mishaps, some shotshell manufacturers are now color coding the different shell gauges, so that just by noting the shell case's color you are reminded of the gauge shell you are packing for a hunting trip or loading into shotgun. This works fine so long as you stick to the specific brand and shell tube color for the gauge used.

Admittedly, there are some rifle calibers that can be safely interchanged. The American 7mm cartridge is the same as the European 7x57. Our .308 Winchester caliber is identical to the NATO 7.62 mm military cartridge, and the .30-30 Winchester, .30 W.C.F., .30-30 Miniature and the .30-30 W.C.F. Short Range rifle cartridges are all interchangeable in rifles of .30-30 caliber chambering.

Similarly, the .30 Model 1898, .30 Krag and .30-40 Krag cartridges are interchangeable and can be safely fired in a .30-40 Krag, of which military models now privately owned and in use number in the thousands.

In some of the other center fire rifle calibers, however, it is easy to confuse cartridge designations and make serious mistakes in attempted interchangeability.

One has to be especially careful of some of the European cartridge designations. Their classifications and nomenclature similarity are apt to trick anyone unfamiliar with the many different cartridge symbols.

To play it safe, use ammunition headstamped and factory packaged for the exact caliber chambering of the particular rifle used, then choose interchangeable designations only when you must, and only after verifying safe use with a professional gunsmith.

RUSTY GUN SCREWS are the bane of shooters and gunsmiths faced with the job of disassembling and old firearm. I know, because I've encountered my share of rust-stuck screws. Most of them will survive.
(Continued on next page)

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render to logical, patient, determined-but-controlled effort, however.

As many of us know from sad experience, it is easy to break off a screw by applying too much "screwdriver power." One has to know the strength and resiliency of the screwdriver blade as well as the likely breaking stress of the frozen screw. Only experience gives that "feel."

It is absolutely essential that the screwdriver blade match the screw's slotted head. Otherwise, the screwdriver will invariably squirm or jump out of the screw slot with marring damage when force is being applied.

Sometimes it is even necessary to grind a screwdriver blade to proper shape and fit. A typical example is when you're disassembling a custom made European shotgun that incorporates soft metal screws with their characteristically thin slots.

When you must remove the screws from an old rifle or shotgun action, first take time to thoroughly clean the screwheads with a discarded toothbrush wet with mineral spirits or turpentine. Then examine the screwheads and their slots under a magnifying glass. This gives a pretty good idea of any screw removal problems that might be a part of the firearm's disassembly.

In removing long-undisturbed screws, do not simply fit a proper size screwdriver bit to a screw slot and twist hard. First test the screw for resistance to movement. If reasonably applied force does not loosen the screw, try to turn it a wee bit forward, then back. Often this forward and reverse force will loosen a screw in its threaded seat.

If the screw does not move at all, stop removal operation and again study the screw's head and fit before applying a drop or two of Liquid Wrench, Tasgon, or Buick Motors CRC 5-56 penetrant. (The latter has proven especially efficient.)

With the screwhead saturated with penetrant, fit the screwdriver to screw slot and give the handle of the screwdriver a couple of quick, light hammer taps. Then set the job aside for a day or two.

When you come back to the work, again apply a drop or two of solvent and give it a few minutes to soak in around the stubborn screwhead. Also, before resumption of the actual job of attempted screw removal, touch the screwhead with an electric soldering gun or tip of hot soldering copper immediately prior to using screwdriver. Care must be taken not to apply such intense heat that any close-by stock wood might be scorched.

Thereafter, even the most stubborn of screws surrender.

There will be times when your objective will be just the reverse. Instead of removing screws, you will want to seat them firmly, and possibly permanently. This holds true of sight base attaching screws on rifles of heavy recoil.



A new product—bore inspection light—with light-conveying plastic tube, permits close illuminated bore examination.

Yesteryear gunsmiths dipped screws in iodine before seating them, to *cause* eventual rusting and further binding of screw threads in their recesses.

Nowadays it is preferred practice to first clean screws and accepting recesses with a pipecleaner dipped in alcohol, then apply Loc-Tite, Lock-N-Seal, Duco cement or shellac to the threaded components prior to placement.

Where an even stronger fastening is needed or desired, screws can be solder-sweated. This is done by coating the cleaned screw threads with a thin layer of acid-core solder and also flowing a trace of solder into the equally clean screw holes. This is called "tinning," a process familiar to anyone who knows how to successfully solder.

Once screws are in place and tightened as much as can be done with a screwdriver, heat is applied to each screw's head with a clean electric soldering gun or soldering copper. Only enough heat is used to melt the solder already on the screws.

Be sure to neutralize acid-action by applying bicarbonate of soda solution after the soldering is completed.

WHERE THERE IS a new gun purchase or a swap in the making, it is almost a sure bet that the prospective new owner will elect to look through the bore right away.

It makes no difference whether or not the bore is still choked with its factory grease or is mirror

bright. The acquiring party just *has* to examine the firearm's bore!

It is a sensible precaution, as well as an almost natural act. No gunsmith would think of buying a used gun, or taking one in trade, without knowing the true condition of its bore. Neither would an experienced shooter.

To find out bore condition, the bore must be both clean of oil or grease and well illuminated. Otherwise, the inspection will be cursory, at best, and of little practical value. Oil film or grease can hide many little defects.

Logical approach is to run a couple of dry cleaning patches of proper caliber or gauge size through the bore, then follow with two fresh patches wet with Rice XF-10 solution, before attempting bore inspection under illumination. XF-10 will loosen barrel dirt and powder fouling, yet will evaporate quickly, without concealing any barrel imperfection.

XF-10 is a Florida product—created and marketed by Tom Rice, Rice Products Company, 1521 43rd Street, West Palm Beach, Florida 33407. XF-10 isn't cheap, but it is good. Timely use can save many times its represented cost.

Some shooters use a dental mirror or a strip of white celluloid, inserted in gun breech, to reflect light into the bore. Others try to get by using a coin or thumbnail as light reflector.

From time to time, I have mentioned various bore examining devices—like the Army style muzzle attaching reflectors, the Bore-Light and the Bore Scope. All have been for use at either opened firearm breech or at muzzle end.

Most breech or muzzle reflectors give good illumination for the first few inches of introduced light, but invariably fail to maintain an equal and bright examining light the full length of the bore.

An exception is the Speck-O-Lite, a fiber-optic light tube about the diameter of a piece of uncooked spaghetti, which can be inserted in either breech or muzzle for full intensity illumination all along the firearm bore. Its light source is a tiny bulb that operates outside the firearm off two penlight batteries. The light beam is transmitted through the bore by a flexible 12-inch tube.

To use the Speck-O-Lite, the tube is inserted in the breech or muzzle. It will easily enter an opening $\frac{1}{8}$ -inch in diameter or larger. On some long guns, it is advisable to make bore inspection from both ends.

The accessory is extremely simple, lightweight, easy to use, and inexpensive—only \$3.29 from Kurz-Kasch, Inc., 1421 South Broadway, Dayton, Ohio 45401.

I wouldn't take ten bucks for mine if I could not get a replacement.

IF YOU LIKE TO HUNT with a rifle, and your chosen model does not now have an installed set of sling

swivels and a gun sling, you should take prompt steps to add those accessories before hunting season. Right now isn't any too soon; time has a habit of passing quickly.

To the serious and usually successful hunter, a gun sling is a recognized necessity.

To begin with, it makes rifle carrying easier, because with sling strap the hunter can shift the job to his good, strong back muscles while on hike. Fatigue, while on the move, is considerably reduced.

Yet the shouldered rifle is ready for instant use, with the sling—used in hasty loop style—giving steadying influence to each shot. With a little practice, a rifle can be swung from shoulder into sling-supported shooting position with lightning speed.

A sling really comes into its own when the hunter has to make a fast shot after a short run or climb, or has to work rifle action and get off an accurate second shot. Here, the sling will prove invaluable.

The standard military, or Government type, leather strap is $1\frac{1}{4}$ inches wide, made in two sections. It is preferred by tournament target shooters and hunters who may have to carry a heavy rifle long distances.

Better for the average hunter is one of the narrower, lighter leather slings, from $\frac{7}{8}$ to one inch wide, like the Williams and the Whelen models. I use the Williams "Guide" strap, with one inch width sling bows.

For the hunting rifle, sling swivels should be spaced from 26 to $27\frac{1}{2}$ inches apart on the rifle stock. Depending on individual arm length, the front swivel should be located from 2 to 4 inches back of rifle fore-end tip, and the rear swivel will be about right if positioned from $2\frac{1}{2}$ to 3 inches ahead of the toe of the stock.

Careful attention should be paid to the positioning of the forward sling swivel, with its final placement being determined by trial.

If the front swivel is placed so far forward that one must reach 'way out in order to get extended hand and index finger against it, the rifleman's body stance is lowered and considerable strain is put on the back of the shooter's neck as he attempts to bring aiming eye into line of sight.

It is important that the front sling swivel be so located that the shooter can comfortably jam his extended hand hard against the swivel.

Front swivels come in various designs and can be attached in as many ways.

Where there is plenty of wood in a rifle's fore-end to accept a screw long enough to hold firmly, attaching a forward swivel is merely a matter of driving one or two wood screws.

Rifles with thin wood fore-ends usually require a front swivel that screws or snaps into nuts or bases or reinforcing escutcheon on barrel channel side. ●

Limits Siltation

WHEN THE DREDGING operation for the Pineda Causeway over the Banana and Indian rivers was shut down last April by pollution and health officials because of the three-mile muddy streak it created, the Florida Department of Transportation (DOT) engineers were faced with a costly problem.

Continued silting and polluting of the river could cost \$1,000 per day in fines levied by the Air and Water Pollution Control Board. A series of bridges to eliminate the need for such extensive fill for solid causeways would add another three-and-a-half-million dollars to the project.

But DOT engineers came up with the "big diaper," a canvas barrier which effectively limits siltation.

Cost? A mere \$2,000.

Now, improved in design, materials, and in use techniques, the diaper will be used in all DOT activities where siltation could be a problem. Hopefully the idea will be picked up—or demanded—for use in any fresh- or salt-water dredging operations where damage may result from siltation fallout.

The Pineda Causeway project involved moving 2-million cubic yards of fill at a cost of 7½ million dollars. Working with a 54-inch cutter head and a 36-inch discharge pipe, 24 hours a day and 7 days a week, the constant dredge activity caused the cloudy water to develop. Pushed by winds and currents, the siltation moved downstream, spreading so alarmingly that the State Board of Health and the Air and Water Pollution Control Board quickly moved in to stop the operation.

Department of Transportation Secretary Ed Mueller told his engineers "to get the job done, but stay well within the law." At this point, Charles C. Sylvester, Jr., District Construction Engineer, and P. W. Ekey, State Highway Engineer, came up with their "diaper" idea.

To keep the sediments in one spot, these engineers first experimented with the screening type material hung vertically in the water to filter out



the larger particles and let the water pass through. But this porous material readily clogged and was ineffective.

Next they worked with untreated canvas, and while amazing results were achieved, this material deteriorated too quickly. While various weights of Visqueen proved satisfactory, most promising at the moment is a black woven nylon material commonly used in sandbags to control beach erosion.

The diaper is floated by styrofoam lobster trap buoys placed at 4-foot intervals; 5-pound weights made of cement poured into ice cream containers are placed every 10 feet along the bottom to keep the barrier vertical.

Ideally, the barrier depth is matched to the water depth. For optimum results, the top should be several inches below the surface and should end several feet from the bottom to allow passage of water both over and under it.

As silt-laden water hits the barrier, water velocity decreases to a point where it can no longer hold the silt particles and they drop to the bottom. Also, as the tiny mud specks hit the diaper, they bounce off, colliding and sticking to other particles, repeating the process until the cluster becomes so heavy it sinks to the bottom.

DOT placed its first canvas rig in a semi-circle opposite two discharge outlets. It was immediately effective—while it lasted. But the canvas curtain was too deep and the water too shallow. The siltation accumulated at the bottom of the canvas and buried it by rolling it under.

The new techniques of suspension and the switch to plastic and nylon have eliminated this problem.

One method of measuring turbidity is to use a Jackson Candle Turbidimeter. This instrument

consists of a long, calibrated glass tube which is held vertically over a special beeswax-and-sperma-cetti candle. Calibrations run from 5,000 marked at the base of the tube up to zero at the top. As the water to be tested is poured in, the mark at which the candle flame disappears as one squints down into the tube is the number of Jackson units.

Five thousand is "mud"; zero is crystal clear. Florida law allows 50—a reading at which you can see the flame through 18 inches of water.

DOT's first canvas effort, with the barrier set out to trap the particles and to make them fall out in a given area reduced the Jackson unit reading from 2,000 above the diaper, to 335 below it after only one day in operation. Ultimately it went to 140 below the barrier.

From this first venture into siltation control, the DOT engineers arrived at a new philosophy of diaper use. As the dredging moved to the other side of the river, to protect the shallow, grassy areas where most marine life is produced, they stretched an 800-yard barrier out in a straight line to direct and to channel their effluent towards deeper waters where any silting would have less objectionable results. Much fallout occurred along the line of the diaper, too, and there was minimum siltation downstream.

On the discharge side of the barrier, readings were as high as 2,800 as compared to 33 on the shallow, shoreward side.

Another curtain was placed as a screen between the dredge and some oyster bars along the shore—only 150 feet away. Despite extensive turbidity kicked up by the dredge, shoreside readings were 50 or below, and no harmful deposits were noted.

Another area in which the diaper idea is being used by DOT is in bridge construction over rivers

or streams where the turbulence from the water jets used in sinking bridge pilings causes some muddiness. Diapers placed immediately downstream have helped keep siltation at a minimum. There have been two such operations near my home in central Florida—one on SR 426 at Winter Park across a manmade canal, and another near Kissimmee on SR 530 across Bonnet and Shingle creeks.

Use of the diaper is not without its headaches. High winds and strong currents shift it about. Sharks and turtles swim through or tear it in the attempt. And there is always some human vandalism involved.

Each operation varies too, and according to Sylvester, "It depends upon the ingenuity of the individual to achieve the best results."

Used as an encircling silt trap, as a diverter of discharge waters, or as a physical barrier to the siltation of shallow productive waters, the diaper has made a big change in DOT's dredging operation.

This state agency will work with anyone who wants information on the diaper and will willingly share its blueprints, knowledge, and experience. It has already met with the Florida Dredging Association and has answered many inquiries from all over the United States for information on its "invention."

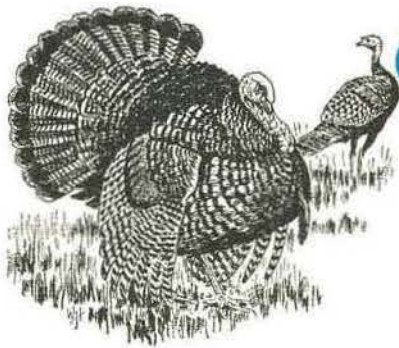
Not to dredge at all would be the ideal situation, of course. But when such operations are necessary, DOT will have its diaper on hand if it looks as though objectionable siltation could occur.

And while it may not be the best answer, the diaper appears to be so at the present time, and it is an idea which should be considered by any organization or company concerned with dredging in Florida. ●

Sheet vinyl material, above left, is effective silt barrier, but sharks and turtles rip right through—woven black nylon is more promising; longer lasting. Barrier may be variously used, right—to trap silt, to channel away the silt-laden waters, plus the protection of specific bottom areas such as oyster beds; grass flats.

By ART HUTT





CONSERVATION SCENE

International Wildlife

THE NATIONAL Wildlife Federation, already publishers of two outstanding membership periodicals, NATIONAL WILDLIFE Magazine and RANGER RICK'S NATURE Magazine (for young people), has announced another: INTERNATIONAL WILDLIFE Magazine, dedicated to "a greater appreciation of our earth's resources."

In introducing the first issue (January-February 1971), Thomas L. Kimball, the Federation's executive director, said, "Through the pages of INTERNATIONAL WILDLIFE we will seek to give substance to the reality that environmental problems and solutions transcend national barriers. That what happens in Madagascar and Manchuria is relevant to the man in Manhattan and Missoula.

"We must realize our earth is a closed ecological system with air, water, soil, minerals, people and wildlife—all interdependent," he added, "and we must recognize that life support resources are finite. We must improve our stewardship if the quality of living is to have any safeguards."

Each of the six issues per year will devote space to the environment, the world of man and nature in a global setting. Each will feature dazzling color photography of wildlife and scenery, along with provocative articles about man himself, written in popular, easy-to-read style.

Volume 1, Number 1 of INTERNATIONAL WILDLIFE takes the reader from the Galapagos Islands to Nepal by way of Siberia

and Australia with some interesting stops along the way. Its 56 pages contain scores of full color illustrations and articles by such noted contributors as Roger Tory Peterson, Lowell Thomas and John Barbour, along with a special commentary on the Galapagos by Prince Philip, Duke of Edinburgh, also a noted naturalist.

The Federation's "International Associate" members receive INTERNATIONAL WILDLIFE and other benefits for \$6.50 per year; "National Associate" members receive NATIONAL WILDLIFE at the same cost. "World Associate" memberships are \$11.00 annually. These members receive both magazines, each published bi-monthly, for a total of 12 issues per year.

All inquiries and orders should be addressed to the National Wildlife Federation, 1412 16th Street N.W., Washington, D.C. 20036.

Getting the Lead Out

WHILE GASOLINE manufacturers are working to take the lead out of gasoline, the Sporting Arms and Ammunition Manufacturers' Institute (SAAMI) has long had a research program to find a substitute for lead in shotshells used for waterfowl hunting.

The problem is that waterfowl, especially the dabblers, eat spent shot which may result in the birds' dying. After extensive research, it looks as though soft iron shot is the best substitute for lead, reports the National Shooting Sports Foundation.

There are still technological problems to be solved, according to Harry Hampton, SAAMI secretary. There is no reliable source of super-soft iron wire which meets specifications required in

making soft iron shot. Also, soft iron shot may cause choke deformation and barrel scoring in some makes of shotgun barrels.

Another problem, Hampton reports, is that soft iron shot may harden with age and could possibly "shoot out" chokes on many guns of modern manufacture. Hampton says that "SAAMI members are diligently pursuing programs to bring soft iron shot into production."

Man-Made Lakes Symposium

AN INTERNATIONAL Symposium on Man-Made Lakes, Their Problems and Environmental Effects will be held in Knoxville, Tennessee, May 3-7 1971, according to the National Wildlife Federation.

The conference is being organized by the Scientific Committee on Water Research (COWAR) on behalf of the International Council of Scientific Unions (ICSU). Numerous Unions and Committees of ICSU are cooperating, and agencies of the United Nations are providing support. Arrangements in the United States are by the National Academy of Sciences, the Tennessee Valley Authority, and the University of Tennessee.

Principal topics include man-made lakes of the world; case studies of major lakes; reservoirs as physical systems including hydrology, meteorology, geophysics, and limnology; reservoirs as biological systems including aquatic and terrestrial ecosystems; reservoirs in relation to man including archaeology, resettlement, agriculture and wildlife, fisheries, health, transportation, and tourism; and management for multiple use.

The Symposium will be organized around (1) broad, inter-

disciplinary case studies of the world's great man-made lakes and collections of lakes, (2) regional summaries and discussion of the several conference topics, and (3) visits to TVA projects and other facilities of interest.

For details contact: Dr. William C. Ackermann, President, Scientific Committee on Water Research, Illinois State Water Survey, Box 232, Urbana, Ill. 61801.

RUFAS and Calico Scallop

SCIENTISTS AT THE National Marine Fisheries Service Exploratory Fishing and Gear Research Base in Pascagoula, Mississippi have known for some time that the calico scallop beds off the north Florida coast could give commercial fishery interests a shot in the arm, says the National Wildlife Federation.

Determining the value of the resource and how it might efficiently be managed required some doing, for the scallops were in 150 feet of water.

Base engineers retreated to the drawing boards and came up with RUFAS—the Remote Underwater Fishery Assessment System.

RUFAS is a towed vehicle bent on ferreting out scallop beds. Its sophisticated optical system is connected by electrical cable to a vessel which serves as a remote control center.

A trained pilot can maneuver RUFAS to any position over the seabed while electric motors turn the brainchild's maneuvering vanes. Special sensing devices are used to determine its height above the seabed in addition to scouting for uncharted obstructions.

The optical system—composed of special lights, television, and 35 millimeter cameras—is also operated from the control center. When RUFAS is gazing at the seabed, the television monitor and video tape recorder give scientists a high quality picture of the terrain. The motion picture camera can be operated whenever bio-

Nature Notes



logical phenomena need to be recorded.

RUFAS to date has already provided timely information for commercial fishermen about location and abundance of calico scallops. Even more important, it has provided scientists valuable information concerning growth rates, spawning and density of the previously elusive calico scallop.

Globetrotting Pintails

ANOTHER PINTAIL duck banded in the United States has been bagged by a hunter in east Russia, according to a recent news release of the National Wildlife Federation.

In October 1965, Wyoming Game and Fish Department personnel tagged a female pintail and released her near Garland. An announcement from the USSR Academy of Sciences Zoological Institute in Moscow revealed the globetrotting pintail was shot May 22, 1969 in the Magadan Region of east Russia (on the north coast of the Sea of Okhotsk)—some 1,500 miles from Alaska's west coast and several times that distance from Garland, Wyoming.

Readers of FLORIDA WILDLIFE may recall an item in the February 1968 issue, page 6, reporting a drake pintail banded by a Florida Game and Fresh Water Fish Commission wildlife biologist near Lake Okeechobee in 1955 that also was killed in east Russia—in 1958.

Pintails from the Pacific Fly-

way reportedly make the Russian junket fairly regularly, but crossing the U.S. from the Atlantic Flyway to enter Russia via Alaska is considered most unusual.

The Wyoming pintail was released in the Central Flyway, but could have been produced in the Pacific Flyway. The dividing line splits the state, and many pintails use both flyways alternately.

"Old Hat" With Shooters

LAST JUNE the Bureau of Sport Fisheries and Wildlife distributed \$15,900,000 in federal aid funds to the states for wildlife restoration programs. An additional apportionment was scheduled for later this year, according to John Marsman of Savage Arms.

The money came from an 11 percent excise tax on sporting arms and ammunition, paid by shooting sportsmen and earmarked by federal law since 1937 for wildlife restoration.

Shooters have paid the excise tax for more than 30 years, and the states have been reimbursed with the revenue accordingly. Since the law was passed in 1937, shooters have paid a total of approximately \$435,000,000.

That's a lot of dough, yet the program has gone virtually unnoticed by the average American. Why? Chiefly because he wasn't interested in conservation, probably didn't know the meaning of the word.

He does now. He learned it a year or two ago along with such terms as ecology and preservation. Oh yes, there's environment, too. He's suddenly become an expert on the protection of our natural resources and he considers the hunter an enemy rather than an ally in the environmental war now being waged.

This is to remind him that he's a trifle late and perhaps a bit hasty with his accusations. So far he's contributed much palaver and little more.

Sportsmen, including hunters,
(Continued on next page)

(Continued from preceding page)
have been on the conservation battlefield for some 70 years. When no one listened, they asked for federal aid programs, such as that mentioned, and agreed to pay for them. A similar program is in effect for fish restoration work, paid for by a 10 percent excise tax on fishing tackle.

There are other examples of pioneer efforts in conservation such as Ducks Unlimited, an organization of waterfowlers which has raised more than \$12,000,000 to improve and expand habitat, thus assuring future waterfowl populations.

Sportsmen support most state fish and game agencies through payment of hunting and fishing license fees, agencies dedicated to sound management of our natural resources. They have asked to be taxed and have volunteered to pay higher license fees to help conservation.

How much has yesterday's preservationist paid? What has he done to help the cause? If he has only lip service to offer, so be it, but let him first consult the record before pointing a finger at shooting sportsmen.

DU Receives Record Grant

OFFICIALS OF Ducks Unlimited, Inc., North America's pioneer in the waterfowl conservation business, announced the largest single grant in the 33-year history of DU has become a reality.

Making the announcement, William P. Elser, of La Jolla, Calif., president of the 50,000-member conservation group, revealed that the Trustees of the Richard King Mellon Charitable Trusts of Pittsburgh, Pa., authorized a record contribution of \$500,000 to DU's waterfowl wetlands projects. The half-million dollar grant is programmed for annual installments of \$100,000 over each of the next five years.

In regard to the record grant Elser stated: "The initial check for \$100,000 was received from the Richard King Mellon Charita-

ble Trusts in early December. These funds will be utilized during 1971 for the development of the Cadotte and Bridge Lakes Projects, top quality waterfowl production areas with important shoreline totaling over 100 miles, located in western Canada's prime 'duck country'."

The late General Richard King Mellon was an Honorary Trustee of Ducks Unlimited, Inc., and a dedicated champion of the non-profit organization's crusade to perpetuate the continent's waterfowl resources.

Water Facts Put Together

NO LONGER comforted by the knowledge that almost three-fourths of the planet is covered with water, the public has become increasingly concerned about the quality and supply of this precious resource. As a result, there has been a proliferation of printed matter on the subject.

THE WATER ENCYCLOPEDIA, published by the Water Information Center, is an effort to put as much of this scattered information as possible between covers. Its contents are a careful selection of the most needed and useful material organized in easy-to-read tabular form, with maps, charts, diagrams and explanatory text where necessary. Nine major chapters indicate its broad coverage: Climate and Precipitation, Hydrology, Water Use, Surface Water, Ground Water, Water Resources Management, Agencies and Organizations, Constants and Conversion Factors, Water Quality and Pollution Control.

In addition, each chapter has numerous subdivisions. "Water Quality and Pollution Control," for example, contains such headings as: Drinking Water Quality Standards, Industrial Water Quality, Irrigation Water Quality, Water Quality for Aquatic Life, Recreational Water Quality, Water Treatment Processes, and Waterborne Diseases, to name just a few.

A basic reference, THE WATER

ENCYCLOPEDIA is designed to provide quick access to more than 200,000 facts never before put together in one book. The 7" x 10" hard-cover volume is available for \$27.50 from Water Information Center, Inc. Dept. 1P, 44 Sintsink Drive East, Port Washington, N.Y. 11050.

Litter Fighter Helps Law

A ROBBERY SUSPECT wanted in four holdups was captured recently because he littered and a 10-year-old schoolboy saw him do it.

According to Keep America Beautiful, Inc., the national anti-litter organization, young Steven Taylor of Fayetteville, North Carolina saw a motorist toss a handful of paper scraps out of his car while driving past the Taylor home.

Steve memorized the car's license number, ran inside the house and wrote it down. Then he went back out and picked up the litter. Among the scraps of paper he found the fragment of a check bearing the name of a local department store that had been robbed earlier in the day.

Steve's parents called the police. Armed with the litterbug's license number and the telltale check, they nabbed the suspect.

Solid Waste Problem Aid

THE Vistron Corp., a subsidiary of Standard Oil Company of Ohio, has announced development of a plastic bottle that could help solve the nation's solid waste problem, reports the National Wildlife Federation.

The bottle, made of Borex 210, is as transparent as glass, one-fifth as heavy and burns to a crumbly ash when lighted.

The combustible bottle burns at 1000 degrees and its smoke does not change the chemical nature of incinerator smoke, Vistron claims. It has been approved by the Food and Drug Administration for use as food and beverage containers, according to Vistron.

For that BIG ONE



that didn't get away

ELIGIBILITY REQUIREMENTS SPECIES

LARGEMOUTH BASS

.....8 pounds or larger

CHAIN PICKEREL

.....4 pounds or larger

BLUEGILL (BREAM)

.....1 1/2 pounds or larger

SHELLCRACKER

.....2 pounds or larger

BLACK CRAPPIE

.....2 pounds or larger

RED BREAST

.....1 pound or larger

All fish must be taken from the fresh waters of the state of Florida, as defined by the Game and Fresh Water Fish Commission. Fish must be caught on conventional fishing tackle, with artificial or live bait, in the presence of at least one witness.

The catch must be weighed and recorded at a fishing camp or tackle store within the state by the owner, manager, or an authorized agent of the respective establishment.

FLORIDA WILDLIFE'S FISHING CITATION

is available without charge, to any and all subscribers to Florida Wildlife Magazine, and their immediate families, who catch any of the fresh-water game fish of the prescribed species and size requirements. Citation, showing recorded date of the catch, will be mailed to the applicant upon receipt of the following application form that has been properly filled out and signed.

Only fishing citation applications received within 90 days from date of catch will be honored.

APPLICATION FOR FLORIDA WILDLIFE FISHING CITATION

The Editor, FLORIDA WILDLIFE

Date _____

Game & Fresh Water Fish Commission, Tallahassee, Fla.

Please send me the Florida Wildlife Fishing Citation with the inscribed data listed below:

Name (please print) _____

Address _____

City _____ State _____ Zip No. _____

Species _____ Weight _____ Length _____

Type of Tackle _____

Bait or Lure Used _____

Where Caught _____ in _____ County

Date Caught _____ Catch Witnessed By _____

Registered, Weighed By _____ At _____

Signature of Applicant _____

CUT OUT AND SAVE THIS APPLICATION BLANK



Florida Mink

Photo By Wallace Hughes

6-1-70 IO 4-71
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